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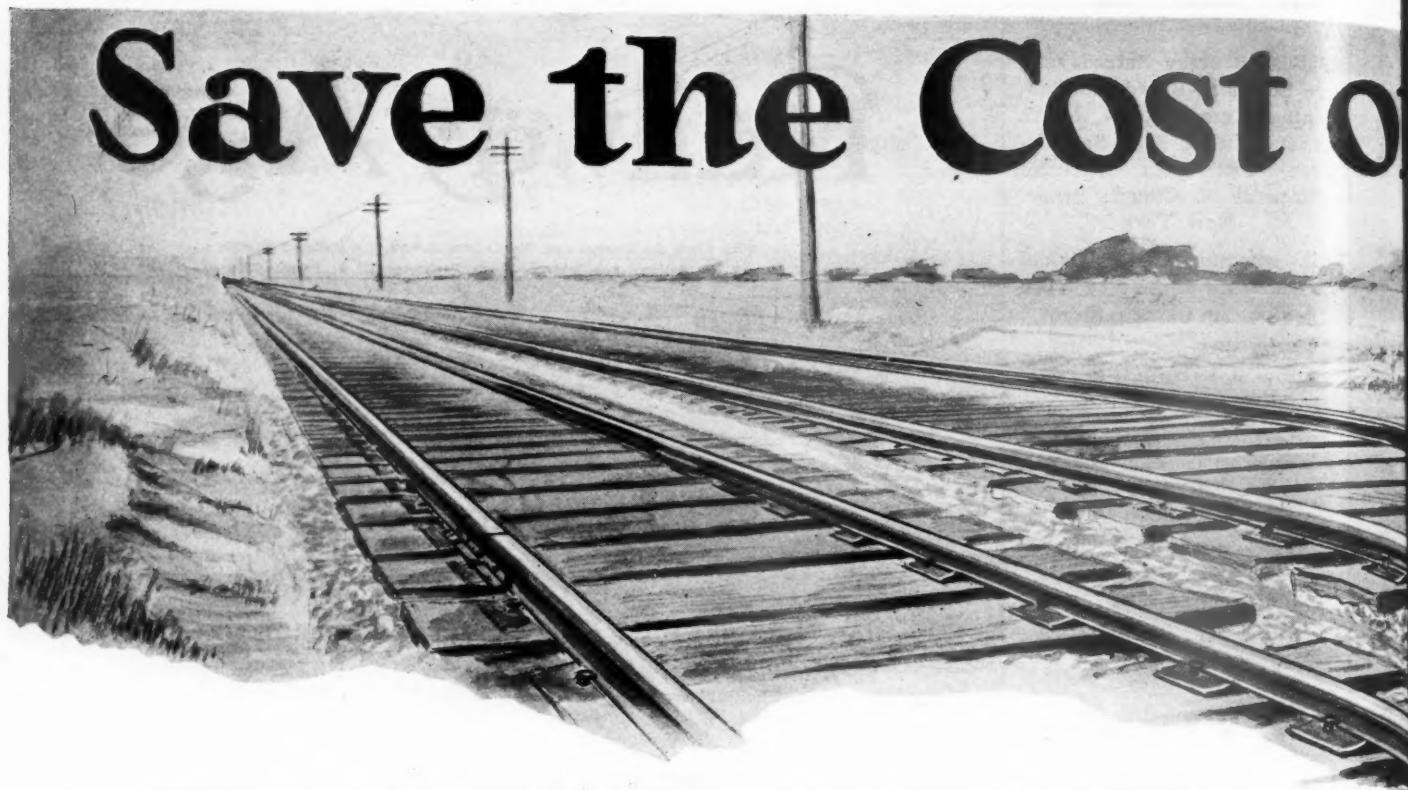
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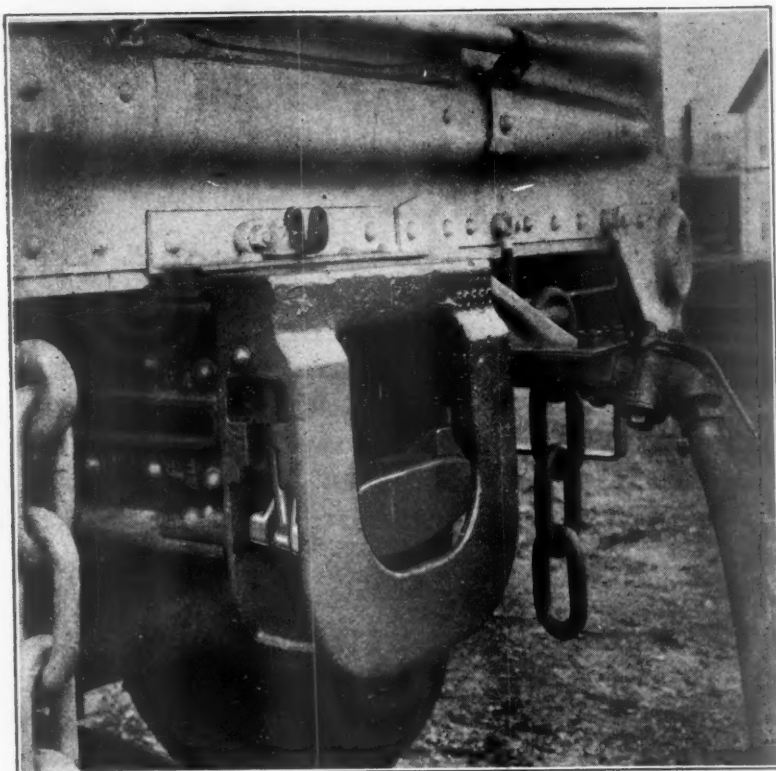
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Railway Age

Vol. 89, No. 21

November 22, 1930

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The Problem of Regulation

THE extremely difficult or impossible problem of securing fair and lawful regulation from the Interstate Commerce Commission with which the railways are confronted is strikingly illustrated by the refusal of the commission to reopen the western grain rate case and recent correspondence between a committee of presidents representing western railroads and the commission. The committee of presidents first asked for an informal conference with the commission, which was refused. It then sent the commission a statement showing the very bad financial condition of the western group of railways, the reasons for it, and saying: "We most earnestly ask you to give such facts as we have presented the weight to which they are entitled in administering the grave responsibility which Congress has placed upon you in the Interstate Commerce act." The commission made a formal reply, saying: "Of course, any such matters must be considered and passed upon by us upon the records in proceedings, conformably with the law and settled practice of the commission," and concluded with the words: "This (the railway presidents') statement makes no suggestion as to any action by us deemed by you to be feasible to relieve the revenue situation of the western railroads or legally necessary in the premises; should such requests be presented, they will be given our earnest and prompt consideration."

Reading the Commission's Mind

The commission, in its reply to the western presidents, thus took the position that it could not do anything to aid the carriers excepting by passing upon records made in formal proceedings initiated by the carriers. Section 15-A of the Transportation act, however, specifically directs the commission to "initiate, modify, establish or adjust" rates so that the carriers, under good management, will be able to earn a fair average return. The commission's statement to the western presidents, while referring to "the law and settled practice of the commission," and what is "legally necessary" ignores the affirmative duty imposed upon it by Section 15-A. In other words, while hiding behind certain legal technicalities, it virtually writes out of the law the duty imposed upon it to see that the carriers get a fair return, and puts entirely upon their managers the re-

sponsibility for their financial results, although obviously those results depend largely upon the way the commission regulates rates.

The commission's letter seems to invite the carriers to present proposals for improving their earnings. The facts are, however, that the commission repeatedly has conceded that these carriers never have earned a fair return in any year since the Transportation act has been in effect; that they repeatedly have presented to the commission definite proposals for increasing their earnings, and that all of their important proposals, excepting in the western trunk line class rate case, have either been rejected or not acted upon. The commission refuses to tell the carriers what it thinks they should do, and they seem to have a fatal inability to read its mind well enough to make almost any proposal of importance which will meet with its favor. It seems significant that shippers have been able to read the commission's mind very much better. Although, on the basis established by Section 15-A there always has been much more justification for advances than reductions in western territory, the shippers repeatedly have been able to make acceptable proposals to the commission for important reductions of rates, as in the California deciduous fruit case and the grain rate case.

The situation is peculiar in another respect. To estimate what change in the general level of rates is necessary to enable the railways of a group to earn a reasonable amount of net operating income is comparatively easy, and it never would have required a large general advance to accomplish this purpose. On the other hand, the "zone of reasonableness" of rates is so wide that to determine whether a particular rate or schedule of rates should be advanced or reduced, say 5 or 10 per cent, to make it "just and reasonable" as required by law, is a problem of the very greatest difficulty. Nevertheless, the commission, although its membership does not include a single experienced traffic man, finds it easy to determine that certain rates should be moved up or down a small percentage to make them reasonable, and in the teeth of the fact that the western group of roads in ten years never have earned a fair return, and is now hardly earning its fixed charges, the commission constantly finds that reductions will make certain rates "just and reasonable".

How can the commission so persistently, year after year, ignore the duty imposed on it by Section 15-A, and then write a letter to western presidents talking about what should be done "conformably with the law"? The commission has never acted conformably with the vitally important rate-making provisions of the Transportation act, and its recent letter simply adds to the evidence that it never intends to. Why, then, drag in legal matters of so much less importance? The commission's policy is not the "fair return" policy of the law it is required to administer. It is that of its dominant member, Commissioner Eastman, of constantly restricting the railways to the lowest rates and the smallest earnings upon which the commission believes they can live. Thus, the commission completely disregards what the rate-making provisions tell it to do, and follows its own inclination to pursue a policy of deliberate, continuous and unconstitutional confiscation of railway property.

Commissioner Eastman is an advocate of government ownership, and, having both socialistic principles and a Puritan conscience, it is natural and inevitable that he should favor the policy he does. It is quite natural that Chairman McManamy, with his background, should favor the same policy. Why most of the other members of the commission should favor it is inexplicable excepting perhaps upon the theory that, whatever their professed principles of economics and property rights may be, it is almost impossible in this country for men who are appointed to regulate an industry not to believe that their duty to the public is to strangle that industry as much as it can stand without ceasing to function.

The railroad situation is critical, and the past policy of the commission, more than any other influence, has made it so. The commission's policy defies the constitutional law of the land and is abominably unfair. It has so often rejected proposals of the western railways for improving their situation that its continued throwing out of suggestions that they make more proposals sounds hypocritical. The commission as at present constituted seems to care little about the future of the railroads and to be determined to assume no responsibility for it. It knows their plight, but apparently believes that it would be better for the railroad industry to come to disaster than for the Interstate Commerce Commission to be suspected of doing anything unusual to prevent the disaster.

What Shall Be Done?

There are two ways open to the railways for saving themselves from a continuance of such regulation. One of them is to resort to litigation and ascertain whether the courts will compel the commission to obey the rate-making provisions of the law. The other is to seek changes in the personnel of the commission as rapidly as its anti-railway members' terms expire. The present commission is a hanging judge. For the railways to hope for anything but a policy of confiscation from it seems futile.

Significant Traffic Experiments

TWO most interesting recent developments in the railways' efforts to solve their traffic problems are the experimental three-class passenger rates being offered by certain railways between Chicago and the Pacific Coast and the negotiations in New York looking to the provision of store-door collection and delivery of railroad freight by the Railway Express Agency.

The experimental three-class rate plan is one which will be watched with great interest, and it is to be hoped that it will be so conducted that definite conclusions may be drawn from the results it shows. There have been rate experiments heretofore which have failed because they were too restrictive, too complex and hence impossible to impress firmly in the public mind. The present rates are frankly placed in effect to meet long-distance highway competition. The casual traveler knows, without any special advertising effort, that the highway rate is, generally speaking, lower than the rail rate. If railway day coach rates were to be generally reduced, that fact would receive sufficient publicity to remove the difficulty of securing adequate public attention, which is a handicap which exists when rates are reduced only between certain points. If an experiment limited in its application is to be given a fair chance to succeed, therefore, extraordinary effort must be put forth to impress it upon the public mind both by adequate advertising and widespread publicity.

There is, as is well known, a great difference of opinion among able railroad officers as to the probable efficacy of rate concessions in holding and attracting traffic. But all of them have an equal interest in arriving at the truth. The roads which see some hope in rate concessions and are making these experiments are, therefore, performing a service not only for themselves but for those who disagree with them as well. It is just as much to the advantage of railways that are pessimistic about the effectiveness of rate concessions to see that these experiments are surrounded with conditions favorable to success as it is to those who have built their hopes upon the idea. So it is to be hoped that all will co-operate heartily to see that the natural handicap—lack of publicity—of this worthwhile experiment is as far as possible removed.

The second development mentioned, that of discussions as to the feasibility of delegating to the Railway Express Agency the task of store-door collection and delivery of freight for all railroads in New York is quite as interesting in its possibilities. The propriety of having this organization assume this task seems obvious. It has more experience in the operation of trucks and other vehicles in pick-up and delivery service than any other organization on the continent. It is controlled by the railroads, which have invested their money in it and will profit as it profits. Its officers have learned to deal without discrimination as among railroads. It enjoys public confidence to an extent which few, if any, independent truckmen can claim.

Moreover, there appears to be every reason both from the standpoint of the railroads and the public for favoring a railroad-controlled organization, rather than independent truckers, to perform this service for the railroads. Previous experience in New York clearly proved the difficulty of preventing discrimination in charges when independent truckmen were providing this service—a situation which was contrary to the best interests of the railroads and shippers as well, and probably, moreover, contrary to the law. From the railroad point of view, also, it must be remembered that the independent trucking company is either actually or potentially a long-distance transport agency. Such an organization, if it acts as the immediate contact between the railroad and its patrons, may as frequently take business away from the railroad as bring traffic to it. The Express Agency could be relied upon to play no favorites and to work first, last and all the time in the interest of the railroads.

We bespeak for both these developments the attention and interest of all who desire to see an early solution to the most pressing problem now facing the railroads—that of inadequate traffic. By a determination to face the situation courageously and by joint action to foster experiment the problem can be solved. Such developments as those mentioned herewith, and there have been many of like nature in recent months, give assurance of even greater progress soon to come—1931 promises to be an interesting year in the annals of the railroads.

Deferred Maintenance

ONE potent influence in the progressive improvements of railway service that have taken place since 1920 has been the concurrent betterment of the track structure. As a result of the expenditures for maintenance of way, American railway tracks are in better condition to withstand the ravages of traffic than in any other period of their history. The rails are heavier, the tie condition is better and there is more ballast under the ties. The roadbed shows the beneficial effect of extensive drainage programs.

By the same token, railway tracks are now better able to withstand the effects of a period of curtailed maintenance such as that to which they have been subjected during the present year. This situation is particularly apparent with respect to the ties, for the general use of treated ties properly protected against abrasion has reduced the requirements of renewals to a point such that a complete abandonment of renewals in any one year would result in renewals during the following year in no greater volume than that formerly considered normal for a single year's requirements. The heavier track structure has made it possible, after a general surfacing program, to make appreciable reduction in the section forces required for current upkeep. In other words, it has been possible for the tracks to live temporarily "off of their own fat."

This state of affairs may easily lead to an unwarranted complacency on the part of executive officers and directors, for, as the maintenance of way officers realize all too well, the influence of curtailed maintenance, while remaining concealed for a considerable period, will suddenly become manifest in a roughness of the track that presages a generally depreciated condition. The winter of 1930-1931 will undoubtedly bring to light many track conditions that will require corrective measures as soon as the advent of spring permits, but, more important than this, it will serve as an index of the extent to which maintenance of way work has been unduly deferred.

Further Employment Decline

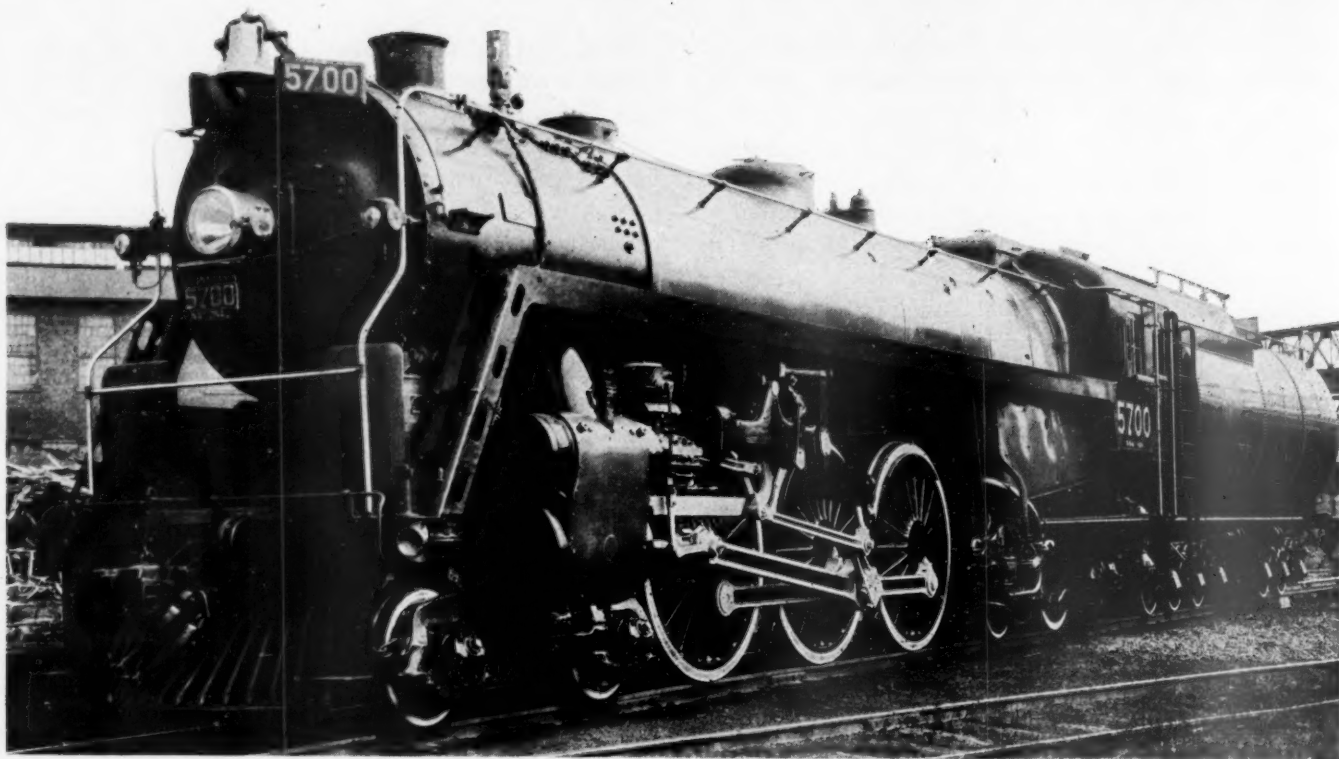
THAT the number of railway employees declined to 1,485,906 in September, 1930, is disclosed by statistics recently issued by the Interstate Commerce Commission. This represented a decline of 30,000 between August and September, was the smallest number ever reported since monthly statistics have been kept, excepting at the beginning of the nation-wide shop employees' strike in July, 1922, and was only 18,000 more than in that month. It was 232,000 less than the number employed in September, 1921, the last previous year of severe business depression, and 262,000 less than the number in September, 1929.

Compared with September, 1929, the reduction in the number of employees engaged in train service was 13 per cent, in maintenance of equipment, 15 per cent, and in maintenance of way, 23 per cent. The expenditures for both maintenance of equipment and maintenance of way in September were smaller than in the corresponding month of any year since 1917, when wages and prices of materials were much lower than now.

In effect, the reduction in the number of employees this year has been larger than the figures indicate because in many cases the number of days worked per employee has been reduced to provide employment for more persons than otherwise would be the case.

One of the principal reasons why so many railways have resorted to such drastic retrenchments is that New York state has a law requiring that the net operating income of a railway must be at least one and one-half times as great as its fixed charges to make its bonds eligible as investments for savings banks, and railways all over the country are struggling to avoid the blow to their credit that would be dealt if their bonds were thrown out as savings bank investments in New York. Other states have similar laws.

Present conditions in the railroad industry strikingly illustrate the menace to both the credit of the railways and the jobs of their employees that is presented by government policies which so restrict the net return of the railways in years of prosperity as to make it necessary to resort to the most drastic retrenchment in years of depression to enable many railways to earn even their fixed charges.



One of the 4-6-4 Type Locomotives Built for the Canadian National by the Montreal Locomotive Works, Ltd.

Canadian National Buys Five 4-6-4 Type Locomotives

For service on the "International Limited" between Montreal and Chicago—Tractive force 53,400 lb.

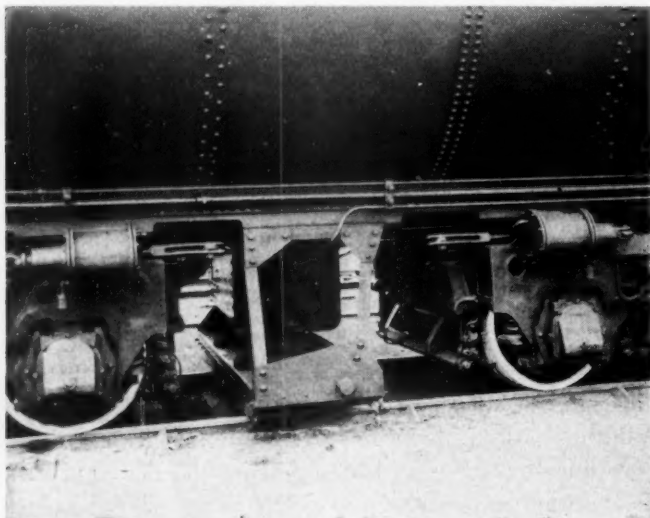
THE Montreal Locomotive Works, Ltd., recently delivered five 4-6-4 type locomotives to the Canadian National for service on its "International Limited" trains, which operate between Montreal, Que., and Chicago. These locomotives exert a maximum rated

tractive force of 43,300 lb., which, with the tractive force of a Franklin trailing-truck booster of 10,100 lb., gives a tractive force at starting of 53,400 lb. The cylinders are 23 in. in diameter by 28 in. stroke. The boilers operate at a pressure of 275 lb. The driving wheels are 80 in. in diameter.

Being designed for passenger service, considerable attention was given to producing an attractive appearance. Practically all of the piping, especially that above the running board, is concealed beneath the jacket of the boiler. The jacket is of polished steel, while the other parts of the locomotive are finished in black Duco. The hand rails, which extend along the sides of the boiler from the cab to the front bumper, are of stainless steel. The air compressor, headlight generator, and piping under the smokebox are concealed by a vertical plate. The sand box is not located in its customary place on top of the boiler, but has been placed inside the smokebox.

Tender of Large Capacity

A number of interesting features have been included in the design of the tender. It has a capacity for 20 tons of coal, and 14,000 Imp. gal. (16,800 U. S. gal.), which capacity is larger than that of any tender previously built for the Canadian National. It has a Commonwealth water-bottom frame and is carried on six-wheel trucks, the journals of which have Timken roller bearings. A



Sprinkler and Brake Cylinder Application to the Tender

device for sprinkling the road bed to lay the dust is secured underneath the tender between the two trucks. It is operated by a control lever located in the cab.

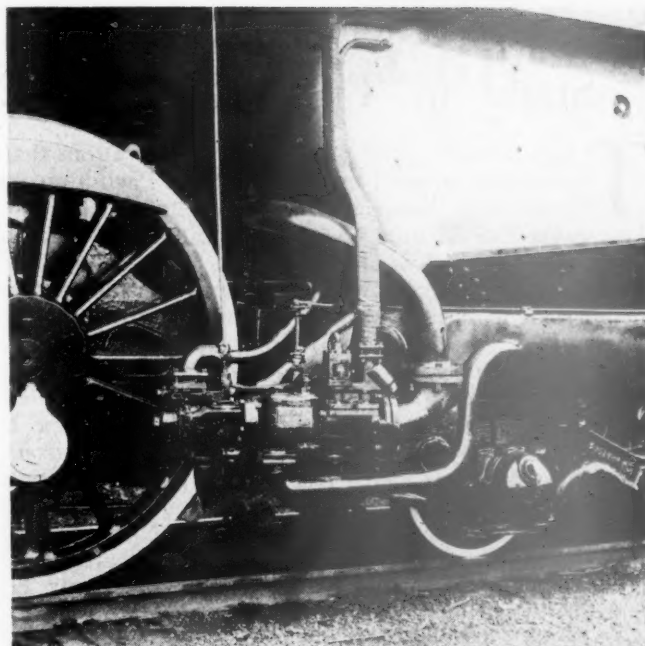
The Unit Brake-Rigging Arrangement

The unit brake-cylinder arrangement applied to the tender is of unusual interest. This arrangement, which was developed by the mechanical department of the Canadian National, with the co-operation of the American Steel Foundries, was originally designed for appli-

Principal Dimensions and Weights of the Canadian National 4-6-4 Type Locomotives

Railroad Builders	Canadian National Montreal Locomotive Works, Ltd.
Service	Passenger
Rated maximum tractive force.....	43,300 lb.
Rated tractive force, booster.....	10,100 lb.
Total starting tractive force.....	53,400 lb.
Weight on drivers ÷ tractive force	4.35
Cylinders, dia. and stroke.....	23 in. by 28 in.
Valve gear, type	Baker
Weights in working order:	
On drivers	188,600 lb.
On front truck	66,000 lb.
On trailing truck, front.....	44,300 lb.
On trailing truck, rear.....	57,500 lb.
Total engine	356,400 lb.
Total tender	305,800 lb.
Total engine and tender	662,200 lb.
Wheel bases:	
Driving	14 ft.
Total engine	40 ft. 2 in.
Total engine and tender	79 ft. 4½ in.
Boiler:	
Steam pressure	275 lb.
Fuel, kind	Bituminous
Diameter, first ring, inside.....	78 in.
Firebox, length and width.....	126½ in. by 84 3/16 in.
Tubes, number and dia.....	44—2¼ in.
Flues, number and dia.....	146—3½ in.
Length over tube sheets	19 ft. 1 in.
Grate area	73.7 sq. ft.
Heating surfaces:	
Firebox and combustion chamber.....	253 sq. ft.
Arch tubes	15 sq. ft.
Syphons	77 sq. ft.
Tubes and flues	3,032 sq. ft.
Total evaporative	3,377 sq. ft.
Superheating	1,492 sq. ft.
Comb. evap. and superheat	4,869 sq. ft.
Tender:	
Water capacity.....	14,000 Imp. gal. (16,800 U. S. gal.)
Fuel capacity	20 tons

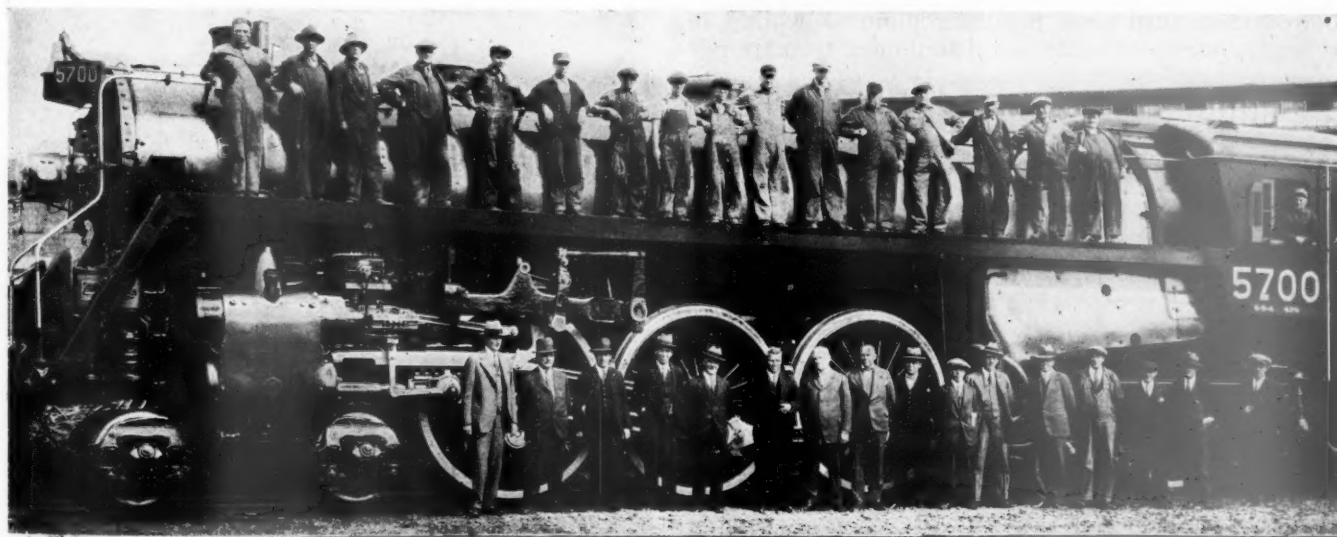
cation to passenger equipment. With the development and construction of heavier passenger cars and tenders, brake cylinders of larger braking value were found to be necessary, especially where total braking ratios had to be held within satisfactory prescribed limits. Larger cylinders than the present maximum size were considered unde-



Exhaust Steam Injector Application

sirable and therefore additional brake cylinders were employed. It was also considered undesirable to employ a dual cylinder arrangement on the tender. Even with a single-cylinder arrangement, braking conditions were frequently found to be unsatisfactory. The problem of finding suitable locations for all the brake equipment that must be attached beneath the tender or car body is difficult with such applications. For these reasons, the unit brake-cylinder arrangement, which provides for four brake cylinders, each of which are attached to the inside ends of the truck frames as shown in several of the illustrations, was adopted. Each cylinder operates the clasp brakes on one side of a truck.

This design provides for an automatic slack adjuster at each lever fulcrum at the end of the truck frame. Its application to the tenders of the Canadian National 4-6-4 type locomotives was because the braking ratio desired was beyond the capacity of a single 18-in. cylinder, and the space beneath the tender and between the trucks was
(Continued on page 1076)



Group of Railroad Officers and Officers and Workmen of the Montreal Locomotive Works, Ltd.

Included in the group are C. E. Brooks, Chief of Motive Power, Canadian National; H. C. Butler, Manager, Montreal Locomotive Works; J. D. Scott, Vice President, Holden Company, Ltd.; J. D. McGillis, Shop Superintendent, Montreal Locomotive Works; E. Sanne, Chief Draftsman and E. Parker, Erecting Shop Foreman, Montreal Locomotive Works; J. W. Johnston, Chief Inspector of Headlight and Car Lighting Equipment; W. H. Clegg, Chief Inspector, Air Brakes and Car Heating Equipment; J. W. Elliot, his assistant, and M. V. Milton, Chief Boiler Inspector, Canadian National.

Southern Pacific Takes Stand in Train Limit Case

THE annual savings in freight operation that could be effected by the Southern Pacific on its main line between Indio, Cal., and El Paso, Tex., were the Arizona law which limits freight trains to 70 cars repealed, would total about \$418,000, according to the testimony of Vail S. Andrus, assistant to the vice-president of the Southern Pacific, before a master in chancery, Joseph E. Morrison, at San Francisco, Cal., on November 6. His evidence was introduced in the course of a hearing of consolidated suits instituted by the Southern Pacific and the Atchison, Topeka & Santa Fe to enjoin the enforcement of the Arizona train limit law, and which has been in progress at San Francisco since October 15. The Southern Pacific began the presentation of its case on November 3, the time during the preceding two and one-half weeks having been occupied by witnesses from the Santa Fe and railroads which were not directly parties to the proceedings.

H. C. Booth of San Francisco, attorney for the Southern Pacific, in his opening statement declared the Arizona law to be a burden upon interstate commerce, which constitutes more than 90 per cent of that road's freight and passenger traffic that uses Arizona rails. The annual savings of \$418,000 estimated by Mr. Andrus did not contemplate any expenditure for additional passing tracks or other improvements to roadway or heavier locomotives. In general, the study made by the Southern Pacific included the Los Angeles division between Indio, Cal., and Yuma, Ariz., 122 miles, the Tucson division between Yuma and Tucson, via Maricopa, 255 miles, and the Rio Grande division between Tucson and El Paso, via Lordsburg, N. M., 309 miles.

Study of Train Costs

The Southern Pacific study was based upon through freight trains operating during the months of June, July and August, 1927. The actual trains as operated on the three divisions were reconstructed, assuming that no such restriction as the Arizona train limit law existed, by the three chief dispatchers, a task that required more than three months continuous work. In redispersing these trains and determining the expenses of the assumed trains account was taken of enginemen's and trainmen's wages, fuel and locomotive repairs. The savings demonstrated by this method for trains between Indio and El Paso for three months were as follows:

	Actual	Proposed	Saving
Number of trains	4,697	3,650	1,047
Train miles	632,553	493,102	139,451
Locomotive miles	814,846	600,880	213,966
Number of cars	278,440	278,440	.....
Cars per train	59.28	76.28	17.00
Wages, enginemen	\$128,263.29	\$100,635.44	\$27,627.85
Wages, trainmen	\$158,192.04	\$124,748.29	\$33,443.75
Cost of fuel	\$263,394.75	\$232,365.58	\$31,029.17
Cost of locomotive repairs	\$212,384.96	\$194,723.09	\$17,661.87
Gross ton-miles (1000s)	1,491,733	1,491,682	.....
Total saving for one year			\$417,858.81

Actual operating costs for through freight operation between Indio and El Paso were found to be \$2,963,502 for 1927 and for the proposed operation for the same year, \$2,545,643. While 110 locomotives and 109 cabooses were actually used, the proposed operation, with some new motive power, would require only 81 locomotives and 85 cabooses. It was assumed that the

increased investment in locomotives as compared with those already in use would be \$724,584, which would necessitate an annual carrying charge, with interest at 5 per cent, of \$36,230. Thirty-three passing tracks would be extended in Arizona to accommodate from 100 to 125 cars at a total cost of \$467,130, which expenditure would necessitate an annual carrying charge of \$23,357 and an increased annual maintenance of way expenditure, estimated at 15 cents per foot, of \$9,819. The total annual charges for these improvements would be \$69,406, involving a total operating cost of \$2,615,049, resulting in a saving of \$348,453 in favor of the proposed operation of trains of more than 70 cars in length.

The three chief dispatchers who performed the work of reconstructing the through freight train movement testified during the hearing as to the number of "meets" under the actual and proposed operation on July 12, 1927. On the Rio Grande division on that date actual meets were 110, while the proposed reduced that figure to 65. On the Tucson division actual meets on the same day were 115, and proposed, 92, while on the Los Angeles division actual meets were 68 and proposed, 64.

The witnesses who described the actual and proposed Southern Pacific operations, besides Mr. Andrus, included, James Day, chief dispatcher of the Los Angeles division; S. F. Hyde, chief dispatcher of the Tucson division; H. G. Bonorden, chief dispatcher of the Rio Grande division; Paul T. Sawyer and George B. Allen, head timekeeper of the Tucson and Los Angeles divisions respectively; Matt McNamee, assistant head timekeeper of the Rio Grande division; John N. Clark and William B. Kirkland, special representatives on the staff of the general manager of the Pacific lines; W. B. Burris, assistant to the auditor, and A. A. Lowe, general transportation inspector.

Previous to the presentation of the Southern Pacific testimony the Santa Fe closed its case with a description of the constrictive effect of the Arizona law on train operation by W. K. Etter, general manager of the Coast lines of the Santa Fe, and an explanation of the fuel savings credited to the assumed operation across Arizona by Roy W. Hunt, fuel supervisor of the Coast lines of the same road.

* * *



New York Central Train No. 56 Changing from Steam to Electric Locomotive at Linndale, Ohio

Cotton Belt Reconstructs Line in Texas

*Revision of grades and alinement increases train loading
530 tons and saves 53,000 train miles annually*

TO provide a route for certain classes of highly competitive trans-continental traffic, which must be handled on fast and dependable schedules, the St. Louis Southwestern or Cotton Belt, as it is more familiarly known, has been engaged in carrying out progressively an extensive program of grade and line revision between Mt. Pleasant, Tex., and Corsicana, 142 miles, which is to be completed this year. The work under this program, which was started in 1928, will cost approximately \$5,330,000, and involves the moving of more than 3,250,000 cu. yd. of earth, the installation of nearly 128,000 lin. ft. of drain tile, the abandonment and filling of 6,500 lin. ft. of timber trestles, the construction of a large number of creosoted open deck trestles, the application of more than 520,000 cu. yd. of ballast, and the laying of 142 miles of 85-lb. rail.

Maximum gradients of 1.8 per cent have been reduced to momentum grades of 1 per cent, while a maximum curvature of 4 deg. has been adopted in place of the maximum of 10 deg. on the old line. As a result of the improvement, the train loading will be increased by 530 tons, or more than 43 per cent, saving more than 53,000 freight train miles a year.

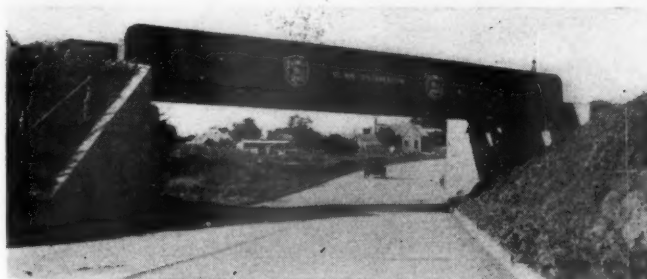
Prior to starting this improvement the line was not ballasted; in many places drainage was poor or non-existent; and the track was laid with 75-lb. rail, which was not in good condition. Most of the bridges were wooden trestles of the open-deck type and were constructed of untreated timber. Particular attention is being given to surface drainage, and every cut that shows any evidence of water is being tiled. Where practicable, the wooden trestles are being replaced with permanent structures or

filled and abandoned; if this is not practicable, they are being rebuilt as open-deck trestles, constructed of creosoted material, and shortened where this can be done. A full ballast section is being installed with washed gravel, and new 85-lb. rail is being laid to replace the lighter 75-lb. section; passing sidings have been constructed at strategic points and existing sidings have been extended to hold one full-tonnage train and one shorter train.

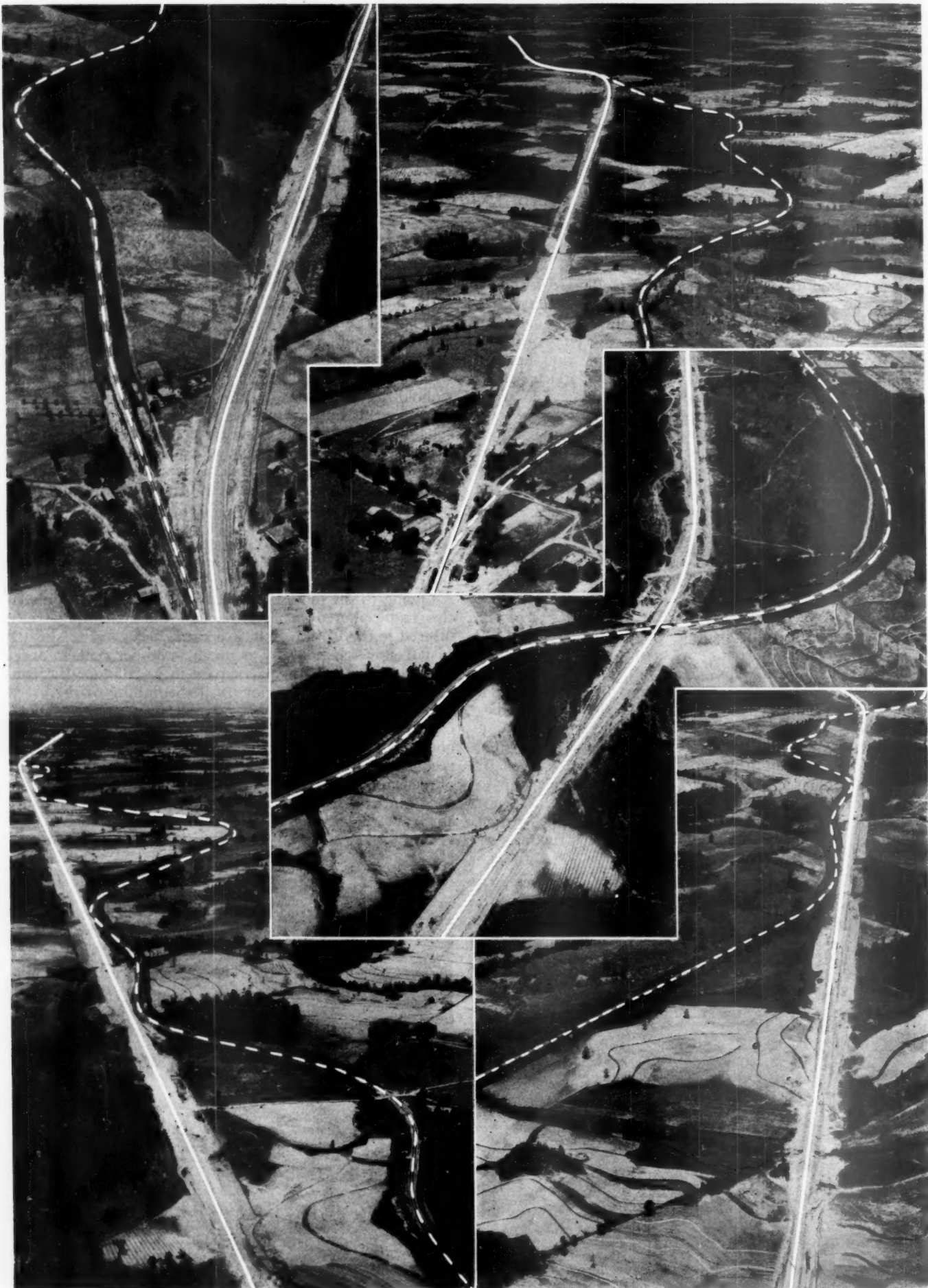
While this improvement is part of a larger program of rehabilitation which is being carried out consistently over the entire system, it was brought about at this time primarily by the development of a new route in connection with the Southern Pacific lines for transcontinental traffic, particularly cantaloupes, lettuce and other Southern California perishable products. Because of its character, this traffic moves on competitive schedules, where the ability to meet or excel the time made by other lines is the controlling factor in holding the business.

Owing to the highly competitive character, not only of this traffic, but of a large part of the remaining traffic offered to the Cotton Belt, it became necessary to shorten fast freight schedules by as much as 30 per cent, in order to enable this road to participate in it. Under the conditions which existed prior to the beginning of the grade revision project, it was not possible to meet these shortened schedules with the full tonnage which made an economical train load. It became necessary, therefore, to reconstruct this part of the line, thereby providing easier grades and a higher standard of track construction to permit greater economy of operation, as well as to insure efficiency of service.

While the grades on the 142 miles involved in this im-



Grade Crossings Were Eliminated Wherever Practicable—Four Types of Structures



Aerial Views Showing Various Line Revisions Between Mt. Pleasant, Tex., and Tyler—Old Location Indicated by Dotted Lines and New Location by Full Lines

provement were the heaviest on the system, and were the limiting factors in the economical movement of traffic, the Cotton Belt is favorably situated with respect to grades over a large part of its mileage. When the present 0.5 per cent gradients between Illmo, Mo., and Jonesboro, Ark., are reduced next year to a maximum of 0.3 per cent, in accordance with present plans, the ruling grade between East St. Louis, Ill., and Pine Bluff, Ark., 404 miles, will be 0.3 per cent.

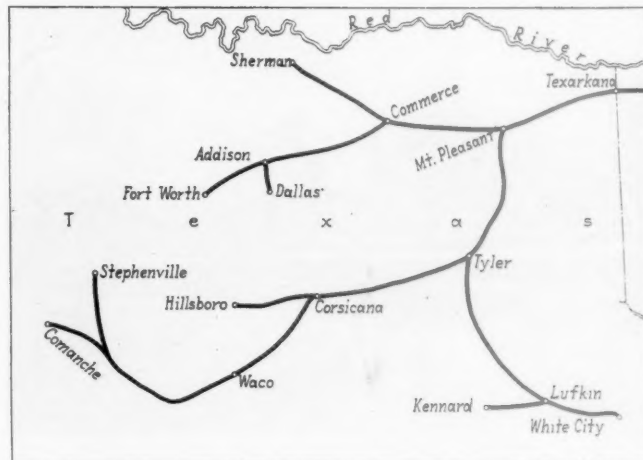
West of Pine Bluff, which is almost exactly half way between East St. Louis and Waco, the character of the country changes, so that at this point there is a sharp demarcation between the lighter grades across the bottom lands of the Mississippi and its tributaries and the heavier grades of the more rolling country of Western Arkansas and Northern and Eastern Texas. As a result, the ruling grade is 1 per cent between Pine Bluff and Mt. Pleasant, 212 miles. Although it is feasible to reduce the grades in this section to a maximum of 0.5 per cent, the present traffic does not justify the expenditure. The studies which were made in planning the grade and line revision west of Mt. Pleasant indicated that the most economical results would be obtained by the adoption of similar grades for this section and this was done. Upon completion of this work, it will be possible, therefore, to handle the same tonnage per train through from Corsicana to Pine Bluff.

Required Almost Complete Reconstruction

A comparatively large tonnage moves over the line between Mt. Pleasant and Corsicana, upon which the ruling grade was 1.8 per cent, while the curvature reached a maximum of 10 deg. The magnitude of these grades and the demand for sustaining the fast freight schedules which had been put into effect, limited the train load to 1,220 tons in both directions between Mt. Pleasant and Tyler, 67 miles, and to 1,350 tons northbound and 1,450 tons southbound between Tyler and Corsicana, 75 miles, where the ruling grade was 1.6 per cent.

Obviously it was not practicable from an operating viewpoint to attempt the reconstruction of the entire line at one time, so that a program of progressive attack was adopted. In preparing this program it was at once evident that the greatest improvement in operation could be made by reducing the grades between Mt. Pleasant and Tyler, since the heavier grades on this part of the line placed the most serious limitation on the tonnage between these points. Accordingly, this section was selected for the starting of the revision work.

For the purpose of carrying out this project, a contract was awarded to Gifford-Hill & Company, Inc., of Dallas, Tex., on May 15, 1928, for the reconstruction of 61.36 miles of the line between Mt. Pleasant and Tyler, of which 44.34 miles were revised as to grade without disturbing the alignment, 14.18 miles were relocated, and on 2.37 miles the work consisted of restoring and widening



Map Showing Cotton Belt Lines in Texas

the subgrade without change in either alignment or grade. As a result of the relocations at various points, the length of the line was shortened 0.47 miles.

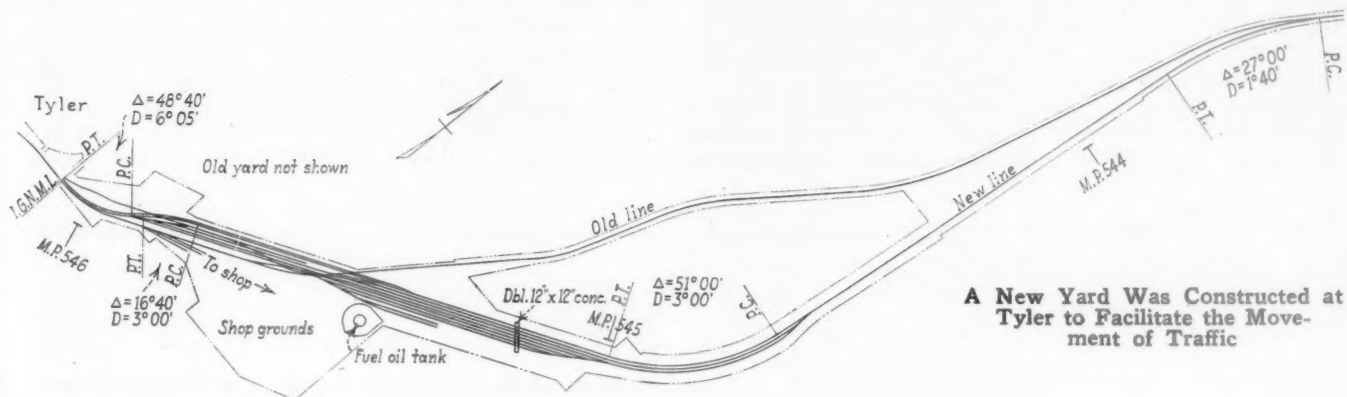
Reduction in Curvature

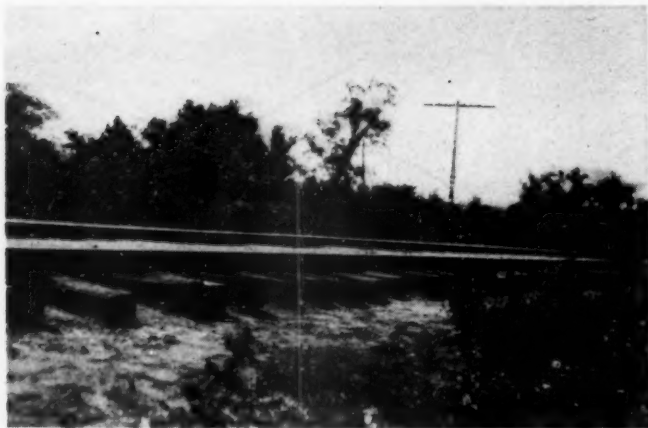
In order to reduce the amount of grading which otherwise would have been necessary, curvature had been introduced freely at the time of the original location. In the revised line many of the relocations were undertaken primarily to reduce both the total central angle and the degree of curvature. Four degrees was adopted as the maximum curvature for the revised line, as contrasted with 10 deg. on the old line. By means of short cutoffs at a number of points, the total central angle has been reduced from 2,972 deg. to 1,859 deg., a reduction of 1,113 deg., or more than 37 per cent. These figures do not give a complete idea of the improvement made in respect to curvature, however, since in numerous other instances the degree of curvature was reduced without affecting the central angle.

Likewise, a similar improvement was effected in the amount of rise and fall. By reducing the summits and raising the track at low points, the total rise and fall have been reduced from 1,447 ft. and 1,437 ft. respectively to 954 ft. and 946 ft., thus reducing to a considerable degree the amount of energy consumed in moving a train over the district.

Revision Extended to Corsicana, Tex.

The revision of the line between Mt. Pleasant and Tyler was completed in August, 1929. In March, 1929, the work was extended from Tyler to Corsicana, 75 miles, this contract also being awarded to Gifford-Hill & Company, Inc., and it is expected that this part of the project will be completed during the present year. The entire line, 74.76 miles, between these points is involved,





Character of Track Before Reconstruction

on 16.45 miles of which there is no change in grade or alinement, the work here consisting of a restoration and widening of the subgrade; on 47.58 miles, the grade is being reduced without change in alinement; while 10.29 miles have been relocated, shortening the distance by 0.44 miles so that the length of the revised line will be 74.32 miles.

The reduction in curvature has been carried out in the same manner as was done north of Tyler, through short cutoffs and the lightening of the rate of curvature without affecting the central angle. By this means the total central angle has been reduced from 1,901 deg. to 1,599 deg., a difference of 302 deg., or more than 15 per cent. The improvement in the rise and fall on this district is indicated by the fact that whereas the rise on the present line is 1,345 ft. and the fall 1,449 ft., on the revised line they will be 870 ft. and 975 ft. respectively.

Between Tyler and Corsicana the ruling grade on the old line was 1.6 per cent in both directions, the aggregate being 8,000 lin. ft. and 10,000 lin. ft. opposed to southbound and northbound traffic, respectively. In addition, there are numerous other gradients in excess of 1 per cent. The revised line will have maximum momentum gradients of 1 per cent in both directions.

New Yard Built at Tyler

As a corollary to the grade revision, but as a necessary part of the general improvement, it became necessary to construct a new yard at Tyler at a cost of \$606,000. The main line of the International-Great Northern crossed the main switching lead of the old yard, while three important streets crossed the body of the yard at grade. The interference with switching is obvious, while a still further obstacle to satisfactory operation occurred by reason of the fact that the north end of this yard was on a 1.5 per cent grade.

The new yard is so located that neither railway nor streets intersect it. While comparatively small, consisting of eight 50-car classification tracks, four 100-car receiving and departure tracks, two light repair tracks and one caboose track, provision has been made for expansion as needed. As an incident to the construction, a complete system of air and water lines was installed throughout the yard. As elsewhere on this project, drainage has

been given particular attention, with the result that 63,000 lin. ft. of drain tile was laid to insure a stable subgrade, and a double 12-ft. by 12-ft. concrete culvert was required to carry the waters of a small stream, which crosses the site of the yard. The new yard is built on a 0.5 per cent gradient throughout its length.

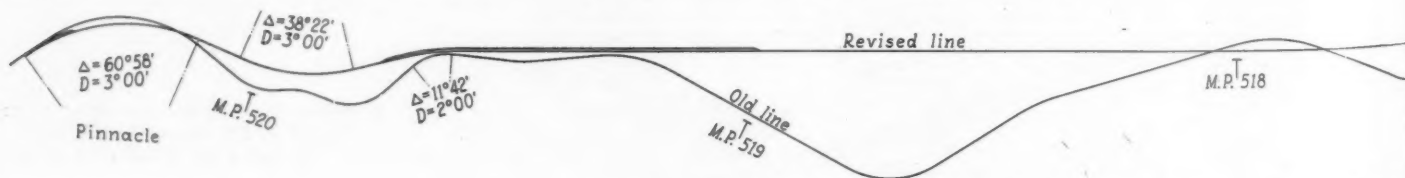
Character of Work

The work over the entire district between Mt. Pleasant and Corsicana is heavy. Between Mt. Pleasant and Tyler the quantities in excavation totaled 723,000 cu. yd. and the embankments required the moving of 1,532,000 cu. yd. On the district from Tyler to Corsicana the excavation amounts to 714,000 cu. yd. and the fill to 1,782,000 cu. yd. Except where line revisions occur, the lifting and depression of the track to conform to the elevation of the new grade line has been accomplished under traffic, amounting frequently to as many as 20 to 25 trains a day. The amount of interference which traffic sustained during the progress of the work is indicated by the fact that track was raised as much as 17 ft. during the construction of certain of the fills. The interference was eliminated to some extent, however, in the work of reducing the summits, since temporary main tracks were laid at successive levels after the steam shovels had cut through.

The contracts for the work included all grading, the laying of tile drains, the construction or relocation of surface drainage ditches, the laying and maintaining of tracks during construction, ballasting, the placing of pipe culverts and the placing of concrete in the larger culverts and bridge sub-structures. The contractor is responsible in all respects for the maintenance of all operated tracks until they are turned back to the railway and accepted as completed. In view of this feature of the agreement covering the work, the contractor not only maintains a full force of trackmen, completely equipped for this type of work, but he also placed a construction roadmaster in charge of these gangs, who concentrates on the supervision of the track work.

Since the amount of material required in embankment greatly exceeded the material available from the normal cuts, a large amount of borrow was required. For this reason a large force of teams was employed to place the base for the larger fills, completing this work well in advance of the raising of the track. The next lift was then made with steam shovel excavation and spread to the required width before the raising of the track was started. It was then finished with steam shovel excavation, the track being raised as rapidly as the widening of the top lift of the embankment would permit. This method was employed to eliminate, so far as possible, and shorten the period of interference with traffic which is inevitable when regularly-operated tracks are being raised to conform to new grade lines. All borrow, in addition to that made by teams, was secured by widening cuts, this excavation being taken out to some depth below the subgrade to insure good drainage for the roadbed.

An indication of the magnitude of the work, as well as of the speed with which it was carried out, is given by the amount and character of the equipment which was used. This consisted of three 70-ton steam shovels on standard gage railway mountings; one 50-ton standard



An Example of the Line Revisions Made at Various Points to Reduce

gage steam shovel on caterpillar mountings, which was convertible into a dragline excavator; one 45-ton Diesel crawler shovel; two gasoline-driven crawler shovels; two 20-ton gasoline drag lines; seven 60-ton standard-gage locomotives; three 12-ton gas locomotives; eighty-four 12-yd. dump cars; forty-five 4-yd. dump cars; four standard spreaders; two 10-ton tractors; two Western graders; 14 dump trucks; 200 teams; and 50 camp equipment cars.

The original line between Mt. Pleasant and Corsicana was laid with 75-lb. rail, but was not ballasted, the cuts and embankments were narrow and little provision had been made for drainage. Preparatory to putting the rehabilitation plan into effect, new track and roadway standards were adopted, which called for a subgrade 22 ft. wide on all main and important branch lines and for a width of 20 ft. on other branches. The standards for ballast require the use of a minimum of 2,800 cu. yd. to the mile. Tile drains are required in all cuts where the roadbed is composed of soft or plastic material, or where there are other evidences of water. The new track standards also call for the use of creosoted ties in all tracks and the installation of 85-lb. rail on all main lines. In connection with the revision work, 85-lb. rail has been laid on all completed tracks, supported on creosoted ties and wrought-iron tie plates. The ballast is river gravel obtained from a company pit on the Ouachita river near Camden, Ark.

Attention to Drainage

Conforming to these standards, all embankments and the subgrade in all cuts have been made 22 ft. wide, with standard surface ditches in all cuts. Tile drains have been laid in practically all cuts, while in wet cuts a system of laterals is also installed. The laterals are of 6-in. vitrified sewer pipe, laid at intervals of two to the rail length, at a depth of 4 ft. to 5 ft. below subgrade, which connect into 8-in. main lines parallel to the track, laid under the surface ditches. Between Mt. Pleasant and Tyler 24,760 lin. ft. of tile has been laid for this purpose, while 40,240 lin. ft. of tile drainage is required between Tyler and Corsicana, this being exclusive of the tile in Tyler yard.

In keeping with this improvement in the subsurface drainage, every effort has been made to provide adequate openings for all ditches and streams which cross the right of way. Many of the existing culverts were of vitrified sewer pipe, and these have been replaced with corrugated iron, concrete and corrugated cast iron culverts of larger size. At larger openings, single and double reinforced concrete box culverts have been employed. Surface ditches which parallel the track have been set back to the edge of the right of way wherever practicable, in order to eliminate, so far as possible, the probability of erosion of embankments. The construction of box culverts, together with a small yardage required for raising the substructures of the longer-span steel bridges, required the placing of 5,624 cu. yd. of concrete between Mt. Pleasant and Tyler and 9,448 cu. yd. between Tyler and Corsicana, a total of 15,072 cu. yd.

At many points on the original line, particularly where



Example of Finished Track

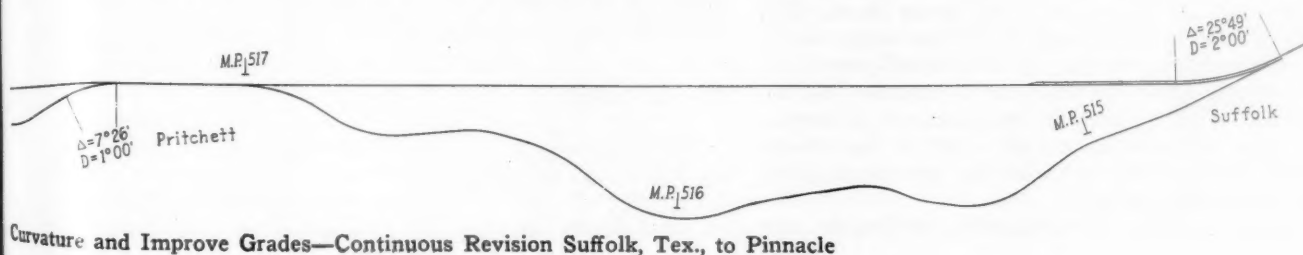
the larger streams are crossed, the grade line was below high-water elevation, with the result that there were frequent interruptions to traffic, while maintenance was made more difficult. In the revised line these conditions have been corrected by raising the grade considerably above high water or relocating the line on higher ground, whichever was more economical. The soil through this section erodes easily. In order to minimize erosion as much as possible, outlets to ditches at the ends of cuts have been turned away from the track and Bermuda grass has been planted or sown on embankments and on the slopes of cuts.

Open-Deck Trestles

Where the amount of runoff is sufficient to require a larger opening than can be made economically with a box culvert, open-deck trestles are employed. Substantially all of the trestles on the original line were of the open-deck type and were constructed of untreated timber. Recent changes in the drainage conditions in the territory traversed by this line made it possible to fill and abandon some of these trestles. In other cases, it was found that pipe culverts or concrete boxes would provide ample waterway, and these structures were installed to replace the timber bridges. In pursuance of the rehabilitation plan for the railway as a whole, it is the policy of the Cotton Belt to eliminate the use of untreated timber in trestle construction, so that all of the wooden trestles that are to remain have been replaced with creosoted trestles of the open-deck type.

Through the abandonment of openings which are no longer required, the substitution of permanent culverts, and the shortening of trestles where this could be done, the total length of timber trestle between Mt. Pleasant and Tyler has been reduced from 13,289 lin. ft. to 9,819 lin. ft., a difference of 3,470 lin. ft. Likewise, the total length of the trestles between Tyler and Corsicana has been reduced from 19,106 lin. ft. to 15,332 ft. or by 3,774 lin. ft.

The work between Mt. Pleasant and Tyler, including the Tyler yard, has been completed at a cost of \$2,608,-



Curvature and Improve Grades—Continuous Revision Suffolk, Tex., to Pinnacle

000, of which \$1,812,000 was charged to road and equipment and \$796,000 to operating expenses. Revised estimates of the work between Tyler and Corsicana, indicate that it will cost \$2,907,720, the charge to road and equipment being \$1,892,900 and to operating expenses \$1,014,820.

The present density of the traffic on this line and the probable increase for the next few years did not justify a further reduction in gradients at this time, when the topography of the country which is traversed is taken into consideration. Careful consideration was given to the probable necessity of a further reduction in the future, however, and the plans were worked out with this in view. The revision which is now being made has been adjusted so that it will fit in with a further reduction in the ruling grade whenever this becomes economically feasible.

The present annual gross tonnage handled in through freight service between Mt. Pleasant and Tyler is northbound 1,238,215 tons, and southbound 1,454,890, and between Tyler and Corsicana this is northbound 773,443 tons and southbound 874,440 tons. Prior to the completion of the revision between Mt. Pleasant and Tyler the tonnage rating of the locomotives used in this service was 1,220 actual tons in both directions. Between Tyler and Corsicana this rating is 1,350 tons northbound and 1,450 tons southbound. When the entire revision is completed, the tonnage rating in both directions between Mt. Pleasant and Corsicana will be 1,750 tons. The present traffic requires 273,895 train miles a year. When the revision work is completed, it is expected that the train miles will be reduced to 221,016, a saving of 52,929 train miles annually.

The work was planned and is being executed under the general direction of Col. F. W. Green, vice-president, and W. S. Hanley, chief engineer, assisted by E. J. Nichols, assistant engineer, E. H. McIlheran, office engineer and F. L. Beal, designing engineer. J. F. Montgomery, division engineer, is in charge of the field operations north of Tyler, and V. C. Nall, division engineer, is in charge south of Tyler. The original location with subsequent modifications was made by E. M. Basye, locating engineer.

Canadian National Buys Five 4-6-4 Type Locomotives

(Continued from page 1069)

so limited as to preclude the practicability of using two 14-in. or two 16-in. brake cylinders. A single- or double-cylinder application, of correct size, would have necessitated foundation-brake parts of large size, which would have compelled the designers to employ undesirable dimensions and shapes and thus materially increase the frictional resistance to their movement and thereby affect the efficiency of the brake rigging.

The unit brake-cylinder application provided a more prompt response of the brake shoes during a brake application and a positive release of the brake rigging with resultant freedom and clearance of the brake shoes. The application of the brake cylinders to the truck frame eliminated the tendency to pull the trucks off center, as sometimes occurs when the cylinder is attached to the tender frame. With respect to maintenance at engine terminals, brake adjustments on each side of the trucks can be made conveniently without the workmen going between or under the trucks.

The designers consider the application of flexible pipe

connections between the body of the tender and the truck to be in the experimental stage. However, based on the satisfactory service over a period of years of similar pipe connections between engines and tenders and to engine-truck brake cylinders, no trouble is expected from this source.

Special Equipment

The engine trucks on three of the engines have outside bearings of the floating-bushing type and are of Canadian National design made interchangeable with engine trucks on the 6100 class 4-8-4 type locomotives, while the engine trucks on the two remaining locomotives are of Commonwealth inside-bearing construction equipped with S K F roller bearings. The trailing truck is of the Delta four-wheel constant resistant type, the rear wheels of which are equipped with a Franklin booster. An Elesco exhaust steam injector is located on the left side of the locomotive, while a non-lifting injector is provided on the right side. The locomotives are equipped with steam whistles pneumatically operated from a valve in the cab. The tender tank has three filling holes to facilitate making water stops.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended November 8 amounted to 881,401 cars, a decrease of 167,567 cars as compared with the corresponding week of last year and of 172,952 cars as compared with 1928. Reductions as compared with both years were shown as to all commodity classifications and all districts. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading			
Districts	Week Ended Saturday, November 8, 1930	1929	1928
Eastern	192,006	231,071	236,198
Allegheny	170,421	216,029	218,673
Pocahontas	51,825	61,600	55,567
Southern	129,032	143,989	151,260
Northwestern	117,483	144,295	149,788
Central Western	143,294	163,060	159,037
Southwestern	77,340	88,924	83,830
Total Western Districts	388,117	396,279	392,655
Total All Roads	881,401	1,048,968	1,054,353
Commodities			
Grain and Grain Products	38,889	39,324	49,355
Live Stock	29,164	33,988	31,286
Coal	172,264	191,810	193,431
Coke	8,703	11,767	10,734
Forest Products	37,610	58,465	63,829
Ore	28,332	41,785	48,377
Mdse. L.C.L.	236,753	267,879	262,483
Miscellaneous	329,686	403,950	394,858
November 8	881,401	1,048,968	1,054,353
November 1	934,640	1,072,234	1,103,942
October 25	959,335	1,134,360	1,162,974
October 18	931,085	1,185,564	1,163,135
October 11	954,874	1,179,540	1,190,741
Cumulative total, 45 weeks	40,792,475	46,720,639	45,086,939

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended November 8 totaled 64,804 cars, a decrease from the previous week of 2,320 cars and a decrease from the same week last year of 6,978 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
November 8, 1930	64,804	30,921
November 1, 1930	67,124	32,795
October 25, 1930	68,327	32,265
November 9, 1929	71,782	37,570
Cumulative Totals for Canada		
November 8, 1930	2,783,573	1,503,383
November 9, 1929	3,122,040	1,853,707
November 10, 1928	3,189,649	1,776,430

Inland Waters' Transport Costs Exceed Rail by 50 Per Cent

Government subsidy, allowing low rates, only reason for success of slow and inefficient agency

WASHINGTON, D. C.

ACTUAL costs of transportation by inland waterways per ton-mile considerably exceed the average rates received by the railways paralleling them, when consideration is given to the "hidden" elements of cost, such as interest on the investment, maintenance, depreciation and other factors commonly met by the government, and to the fact that on the average river mileage between terminals is about 50 per cent greater than that by rail, according to "An Economic Survey of Inland Waterway Transportation in the United States" just completed by the Bureau of Railway Economics. The direct cost of transportation by inland waterway is shown to be only a small part of the total cost which should be considered when comparison is made with rail carriage, the study shows, and the report points out that by its expenditures for the development and maintenance of inland waterways the government is subsidizing one form of transportation against another, aside from the direct competition with the railways carried on by the Inland Waterways Corporation.

The report of the survey makes a volume of 238 pages, including statistical appendix and bibliography, and condenses into a form convenient for reference statistical and historical material drawn from thousands of pages of government reports. In addition to its description and analysis of the operations on the principal inland waterway systems of the country the report includes chapters discussing the co-ordination of rail and water service, current programs of waterway development, government expenditures for waterway improvement, economic criteria of transportation, and comparative transportation costs.

Economic criteria must be applied to water transportation projects as well as to other agencies of transportation service, the report points out, and it raises and answers the following questions:

Are existing agencies rendering present and potential service that is adequate, efficient, reliable and continuous in spite of weather conditions? If not, what additional agencies should be developed, and in what way?

What are the comparative costs of transportation by water, rail, and highway?

To what extent does public policy warrant financial assistance from the government treasury to develop inland waterways?

In the matter of reliability, speed, continuity of service, and flexibility, the report says, rail transportation is generally agreed to hold an advantage over water transportation. Railways have more than kept ahead of growth in traffic, despite many prophecies to the contrary.

The question is said to resolve itself largely into a comparison of the cost of transportation by water and rail. In making such a comparison, all costs should be considered, including (in the case of water transport

agencies) the contribution made by the taxpayer through the government treasury to the construction and maintenance of the waterway. This contribution is a hidden, but none the less real, element in water transport costs.

A recent joint report of the Corps of Engineers and U. S. Shipping Board has laid down the principle that the cost of water transportation, when such cost is to be compared with the corresponding cost of rail transportation, should include interest charges on the capital investment in waterway improvements, plus the annual cost of operation and maintenance.

Adopting this basic principle, and applying it to available statistics regarding the Mississippi River, the Ohio River, and the New York State Barge Canal, it appears from the study that:—

A. Transportation costs on the Mississippi river are not less than 11.17 mills per ton-mile, when allowance is made for circuitous river channels; on eight railways more or less paralleling that river, the inclusive average freight charge per ton-mile is 10.09 mills.

B. Transportation costs on the Ohio river, similarly determined, are not less than 12.36 mills per ton-mile; on seven railways more or less paralleling that river, the inclusive average freight charge per ton-mile is 8.83 mills.

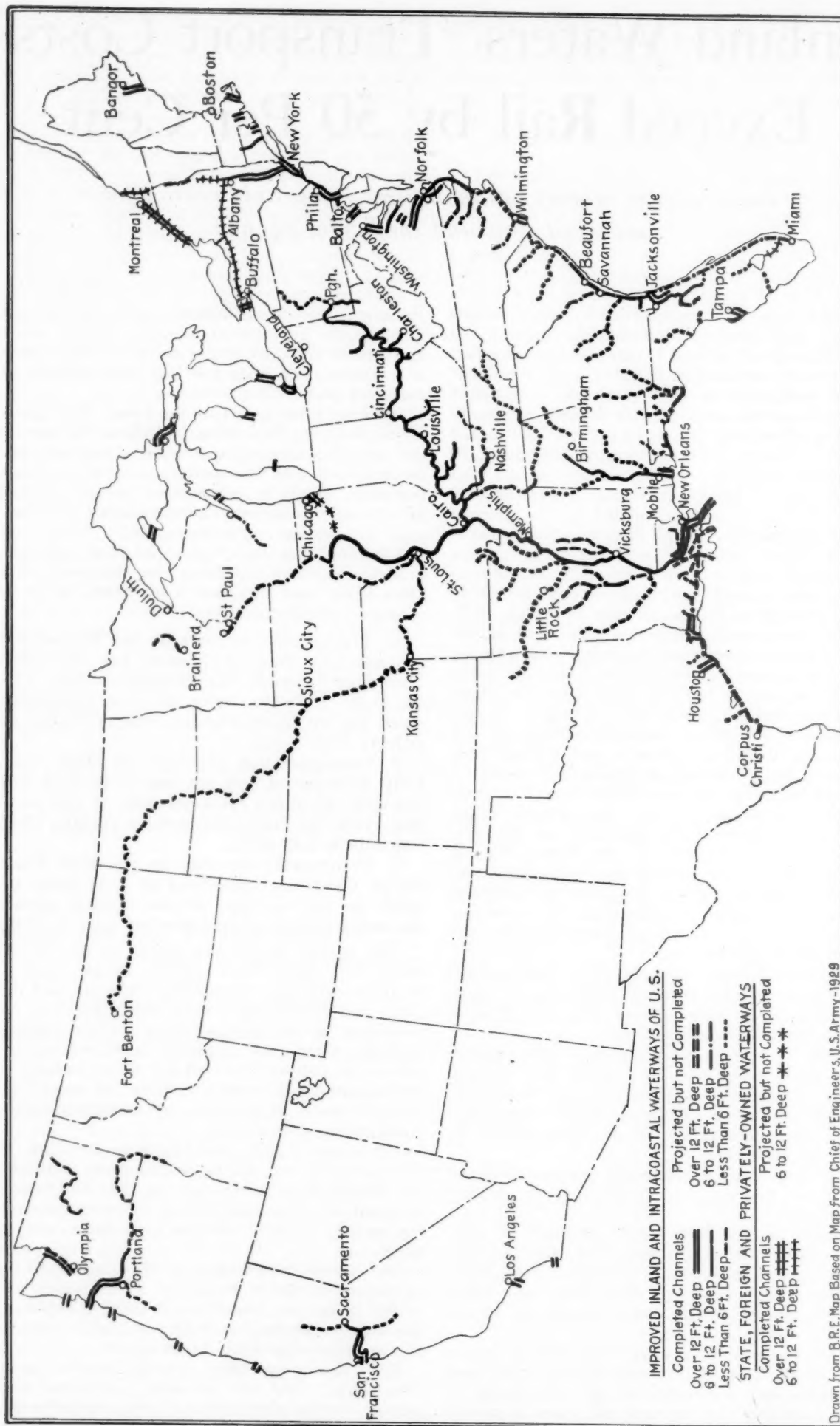
C. Transportation costs on the New York State Barge Canal are computed at 19.41 mills per ton-mile; on the railways of the Eastern district, the inclusive freight charge per ton-mile is 10.90 mills.

The survey shows that prior to the railway era, rivers and canals were among the principal channels of transportation. Steamboat traffic up and down the Ohio and Mississippi rivers was a growing factor of commerce up to the Civil War. Development of the railways after 1865 gradually attracted much of the commerce formerly moved by water, besides creating new commerce in many directions not served by rivers, and the rivers and canals declined to a condition of comparative unimportance.

The water renaissance began in the early days of the twentieth century, received a great stimulus during the World War, and since the war has been carried forward with the assistance of fostering legislation, and the support of many officials, individuals, and organizations.

Our inland waterways, rivers and canals have an aggregate navigable length of 27,400 miles, of which 17,600 miles are less than six feet in depth. Nearly one-half of the total mileage, or 12,475 miles, pertains to the Mississippi-Ohio river system.

The Mississippi-Ohio system, made up of the Mississippi, Ohio and Missouri rivers and their tributaries, carries three-fifths of the ton-miles of inland



waterway traffic, the remaining two-fifths being distributed over more than 200 other rivers and streams.

The bulk of the traffic on the smaller rivers and streams, and a large proportion of that on the larger rivers as well, consists of low-grade freight, principally sand and gravel, stone, coal, and logs and poles floated downstream. On the Mississippi river, 62.8 per cent of the total tonnage consists of non-metallic minerals (stone, sand and gravel, coal, and petroleum); on the Ohio river, a still higher proportion of 90.3 per cent prevails. On many of the shorter rivers, one or more of these products constitute practically the whole of the commerce.

Commercial freight traffic in the United States aggregated 620 billion ton-miles in 1928, distributed among the several transportation agencies as follows:

Steam railways	77%
Great Lakes	14%
Pipe lines	5%
Inland waterways	2%
Motor trucks, electric railways and airplanes....	2%
Total	100%

Government Expenditures for Waterways

Since 1824, the federal government has expended \$1,555,871,000 on river and harbor improvements. About one-half of this total, or \$799,368,000, has been spent on inland waterways, that is, the Mississippi-Ohio system and other rivers and canals. Excluding \$211,317,000 spent for flood control on rivers, the balance of \$588,051,000 represents government expenditures on rivers and canals to 1929 for navigation purposes. This total navigation expenditure is further subdivided as follows:

Federal Navigation Expenditures—1824-1929

Mississippi-Ohio system:		
Cost of new work, maintenance, etc.....	\$396,687,710	
Operating and care of canals	72,294,214	\$468,981,924
Intracoastal and other inland waterways:		
Cost of new work, maintenance, etc.....	\$95,385,408	
Operating and care of canals.....	23,683,861	119,069,269
Grand total		\$588,051,193

Government expenditures for waterways show a generally upward trend. During the fiscal year ended June 30, 1929, the total expenditure for river and harbor improvements of all kinds was \$82,615,431. Inland waterways (rivers and canals) absorbed about three-fourths of this total, including both navigation and flood control expenditures.

President Hoover's program for a coordinated or integrated system of internal waterways in the United States comprises the following principal items:

1. All waterway improvements that will show "economic justification."
2. Deepening the Mississippi River to 9 feet throughout, and the principal tributaries to 6 feet or more.
3. Substitution of private for government operation of the Mississippi-Warrior barge line.
4. Completion of the intracoastal waterway system of canals and channels from Boston to Florida.
5. Deepening of the St. Lawrence River to depths available for ocean-going vessels.

Rivers and Harbors Act, 1930

The Rivers and Harbors Act of 1930 authorized a number of waterway improvement projects designed to forward the program for a co-ordinated waterway system. These projects include improvement of the Illinois river as a link in the Great Lakes-to-the-Gulf Waterway; improvement of the Upper Mississippi river, looking to an eventual depth of nine feet; deepening to six feet an additional section of the Missouri river, reaching to Sioux City; improvements on a num-

ber of other rivers. In addition, the Chief of Engineers was directed to recommend the best route for a canal across New Jersey, as a connecting link between New York Bay and the Delaware river. This canal will fit into the plan for an intracoastal waterway from Boston to Florida, respecting which the act also authorized certain improvements in North Carolina. The final improvement cost of the authorizations covered by this act is estimated at \$144,000,000, which will be spread over a number of years. Definite river and harbor appropriations already made for the fiscal year to June 30, 1931, are estimated at \$60,000,000.

Extracts from the more general parts of the report and the conclusions drawn are as follows:

The Inland Waterways of the United States

The scope of the survey will be the *inland waterways* of the United States, that phrase being used as relating to rivers and canals. A recent government report on inland waterway transportation omits the Great Lakes, and says: "Transportation on the Great Lakes more nearly approaches ocean transportation, and should be treated separately."

Although it is relatively easy to define the term "inland waterways," it is not so easy to limit such an economic survey as this to a discussion of inland waterways proper. Some rivers are inland waterways for a part of the distance, while they are virtually arms of the sea for the remaining part. So far as practicable, the traffic statistics for such rivers have been segregated as between inland and shipping traffic, and the shipping (that is, coastwise, ocean, and "cargo-in-transit") traffic has been excluded. Again, the proposed intracoastal waterway down the Atlantic coast from Boston is designed to meet the needs of small ships, motor vessels, and barges. A large part of the route of this waterway runs along the sea-coast, some of it utilizes interior channels, while the balance consists of canals or canalized rivers now actually constructed or in prospect. Such a waterway, and the traffic moving over it, can be regarded only in part as pertaining to inland waterways proper. While these waterways are included in the present survey, their traffic is included in the traffic totals hereafter discussed, only to the extent that it passes through rivers, channels, and canals. Coastwise and arms-of-the-sea traffic is excluded.

One proposed waterway now under consideration lies on the dividing line between rivers that lead from the ocean into inland harbors and rivers that are strictly inland waterways. This is the St. Lawrence River, which it is proposed to deepen and in part to canalize, so as to make it a connecting link between the Atlantic Ocean and the Great Lakes.

The final sections of the survey deal with the more important economic criteria to be applied to any transportation developments—be they waterway, rail, highway, or airway—in the determination of their value to the nation and to the people. For it is believed that only by the application of methods of economic appraisal can the real worth of any transportation agency be ascertained.

There follow, in a series of analyses, the salient points in the history and development of inland waterway transportation in the United States. A brief description of the waterway network will introduce the subject, while sections of that network will be discussed in greater detail as they are later accorded separate and individual treatment.

The Chief of Engineers stated in 1928 that 292 rivers and 49 canals and other waterways were then under improvement by the federal government. His report on Commercial Statistics for the calendar year 1928 listed a large number of rivers, in addition to federal canals and connecting channels, and state and private canals, for which traffic figures are reported.

In general, the aggregate navigable length of rivers in the United States now approximates 27,400 miles; more than 17,600 miles included in this aggregate, or about two-thirds, has a depth of less than six feet; some of this mileage and the bulk of the remaining mileage is either under improvement or is included in definite projects laid out by the Chief of Engineers and his staff, under general or specific instructions contained in the various acts of Congress.

The accompanying map supplies, in graphic form, a general outline of the river and canal network throughout the United States, indicating proposed as well as present improvements, channel depths, and the like.¹

¹ As this map was prepared in 1929, it does not show the authorizations of Rivers and Harbors Act of 1930.

The map relates to the principal improved waterways of the United States, not including seacoast and lake harbors and channels, with an indication of both completed, and projected but not completed, channels.

The majority of the 292 rivers mentioned in the Chief of Engineers' report for 1928 are short and carry insignificant amounts of traffic, mostly local and short-haul low-grade freight. Outside of the Mississippi-Ohio river system, which accounts for 12,475 miles of the total of 27,406 miles, a comparatively small number of rivers or river systems in the United States have a navigable length exceeding 100 miles.

Table 2 is a list, drawn from records of the Chief of Engineers of 37 rivers, which in 1925 had a navigable length of 100 miles or over, with the mileage classified according to depth. The total navigable mileage of these 37 rivers (as of the fiscal year 1925) is 6,730 miles of which 4,598 miles, or 68.3 per cent, are less than 6 feet in depth; 1,510 miles, or 22.4 per cent, are 6 to 12 feet deep; the remaining 622 miles, or 9.3 per cent, are 12 feet or over in depth.

The remainder of the river mileage of the country, outside of the Mississippi-Ohio system and other larger rivers, aggregates 8,201 miles and is distributed over more than 200 small rivers, streams, creeks, and inlets. The average navigable mileage of these rivers and streams is only about 40 miles.

Combining the mileage figures and distributing them according to the same depth classification, the result appears as follows:

Navigable Mileage in 1925

	Under 6 ft.	6 to 12 ft.	12 ft. and over	Total
Mississippi-Ohio System ¹	8,896	3,340	239	12,475
Other large rivers ²	4,598	1,510	622	6,730
All other rivers and streams	4,164	3,299	738	8,201
Total	17,658	8,148	1,599	27,406

¹ Corrected to include recent deepening of the Ohio River.

² Covers the 37 rivers listed in Table 2.

Character of River Traffic

The traffic of the smaller rivers and streams to a large extent consists of sand and gravel, logs, wood, forest products, and other bulky freight of comparatively small value per ton. On these rivers, freight traffic is necessarily local and restricted in nature, moves short distances, and tends to be low-grade in type.

Even in the case of the larger rivers, a great part of the traffic often consists of sand, gravel, stone, coal, ore, logs, and wood. A considerable proportion of the river traffic on the Pacific Coast consists of logs, piling, or poles, floated or rafted downstream from lumbering areas. The same is true, in lesser degree, of rivers in certain other sections.

Movement of sand on our rivers is frequently a short-haul transfer from points where the sand is dredged from river bottoms to other points where it may be deposited or utilized.

Another considerable part of the river traffic, especially on the Ohio and its tributaries, consists of raw materials and fabricated products moved by industrial corporations in their own equipment and in connection with their own operations.

Comparative Traffic on Inland Waterways

The following table presents the net tons of commercial traffic passing through the inland waterways of the United States during each calendar year from 1920 to 1928. The totals exclude the Great Lakes and the lake-connecting channels, and are therefore smaller in amount than the comparative statistics of water-borne commerce published by the Chief of Engineers.

From 1920 to 1928 this river and canal commerce grew from 83,150,182 to 160,927,905 tons, or 93.5 per cent. Part of this increase can be attributed to the collection of more complete tonnage reports in the later years of the period.

The following table is a condensation designed to indicate what are the principal rivers and canals of the United States, measured in terms of tonnage moved on them. This summary table lists only those rivers and canals separately for which a million or more tons of traffic were reported in 1928.

Commerce of Principal Waterways, 1928

Grand Divisions	Tons
Atlantic Coast:	
Hudson River (Middle and upper)	8,212,238
Delaware River (Phila.-Trenton)	5,063,776
Potomac River (below Wash.)	2,078,009
James River	1,125,210
Gulf Coast:	
Black Warrior, etc.	1,758,358
Mississippi and tributaries:	
Mississippi (below St. Paul)	18,476,509
Allegheny River	3,692,584
Monongahela River	27,412,143

Kanawha River	1,595,846
Ohio River (below Pittsburgh)	20,938,267
Tennessee River	2,269,192
Pacific Coast:	
Willamette River (above Portland)	2,064,384
Columbia and Willamette	7,751,621
Hoquiam River	1,529,127
Snohomish River	2,242,749
Federal Canals and connecting channels:	
Cape Cod Canal	1,405,782
Coney Island Channel	1,023,384
Sabine-Neches Canal	10,331,908
Lake Washington Ship Canal	3,093,698
State and private canals:	
New York State Barge Canal	3,089,998

Survey of this table indicates the comparatively small number of inland waterways, outside the Mississippi river and tributaries, that carry a large amount of traffic. On the Atlantic Coast, the two leading rivers, from the tonnage point of view, are the Hudson and the Delaware. On the Pacific Coast, the leading river is the Columbia, together with its principal tributary, the Willamette. Outside of the channels connecting the Great Lakes, over which much of the lake traffic moves, and which are not included in this table, the principal federal canals are channels connecting two sections of open water (Cape Cod Canal, 7.6 miles long) or running inland to a harbor (Sabine-Neches Canal in Texas, 16 miles long).

The Several Phases of Transportation

Before entering on a discussion of the inland waterway system of the United States, we may take a bird's-eye view of the relative importance of the several transportation agencies now in operation. For the purpose of this general comparison, their importance to the nation will be gauged by the amount of traffic handled.

The following text table is drawn from the appendix:

Agency	Ton-miles, 1928
Motor trucks (interurban movement)	10,276,000,000
Electric railways	1,270,000,000
Steam railways	477,244,000,000
Total land-borne	488,790,000,000

This table does not include the small amount of commercial freight transmitted by airplane, statistics for which are not available. Nor does it include oil and gasoline transmitted by pipe line, statistics for which are recorded in terms of barrels, and for which neither tonnage nor ton-mile statistics are available. Pipe-line traffic, while not strictly comparable with rail and water freight traffic, is growing rapidly and has reached considerable proportions. In 1929, for example, 37 pipe-line companies reporting to the Interstate Commerce Commission operated 85,796 miles of pipe line, had a property investment of \$741,000,000, earned \$251,000,000 in pipe-line revenues, and transported 1,156,350,772 barrels of oil. Thirty-three companies so reporting in 1928 transported 1,053,190,757 barrels. A rough estimate of the ton-miles represented by this oil movement in 1928 places the total in excess of 30 billions.

Including approximations for airplane and pipe-line traffic, the aggregate of land-borne commercial freight traffic in the United States during 1928 was in the neighborhood of 520 billion-ton-miles.

Statistics of water-borne traffic in the United States, during the calendar year 1928, appear in the appendix. These statistics are subject to certain qualifications, as indicated in the footnote to the table, and cannot be regarded as a complete statement of waterway traffic. Including the Great Lakes, and all inland waterways, the table is summarized below:

Waterway	Ton-miles, 1928
Mississippi-Ohio System	5,662,743,000
Atlantic Coast rivers	1,419,242,000
Gulf Coast rivers	436,605,000
Pacific Coast rivers	733,846,000
Other waterways	13,739,000
Canals and channels	1,069,977,000
Inland Waterways	9,336,152,000
Great Lakes System	87,178,118,000
Total Water-borne	96,514,270,000

If it were possible to secure complete traffic statistics for all of the inland waterways, the aggregate of water-borne traffic would probably rise to some 100 billion ton-miles.

Combining the estimates of 520 billion ton-miles for land-borne traffic, and 100 billion ton-miles for water-borne traffic, the grand total for 1928 becomes 620 billions, distributed roughly as follows. In this distribution, some allowance is made for the incompleteness of the statistical information respecting certain of the inland waterways:

Steam railways handled 77 per cent.
Great Lakes traffic accounted for 14 per cent.
Pipe lines handled about 5 per cent.

Inland waterways (rivers and canals) handled 2 per cent.

Motor trucks handled 1.6 per cent.

Electric railways and airplanes handled the remaining fraction of 1 per cent.

Thus in 1928 the steam railways carried more than three-quarters of the commercial freight traffic of the United States, and their proportion was nearly five times as great as the total water-borne traffic, including that on the Great Lakes.

To place the several agencies on a comparative basis that includes only the water-borne traffic moving by inland waterways as they have been defined in this survey, traffic on the Great Lakes and their connecting channels should be eliminated from consideration. With this exclusion, the proportions assignable to rail, inland waterways proper, and other transport agencies, would all be larger, and the relative position of the steam railways in our internal transport system would become more prominent, rising to nearly 90 per cent of the total.

Water-borne freight traffic as a whole is broken down into its component parts in Table C of the appendix, which applies to the calendar year 1928. The outstanding feature of this table is the predominance of the Great Lakes in our interior water transport system, 90 per cent of the water-borne traffic within the United States being handled on those lakes and their connecting channels (Great Lakes system).

The remaining rivers, canals, channels, and waterways, which are hereafter analyzed and discussed under the generic term of *inland waterways*, handled a total freight traffic of 9,336,152,000 ton-miles in 1928. This aggregate, as already indicated, is an incomplete summary of all traffic so handled, but is the total published by the Chief of Engineers.

The Mississippi-Ohio river system occupies a commanding traffic position among the inland waterways proper, with more than 60 per cent of the total traffic. The Atlantic Coast river group accounts for 15 per cent, the canals and channels handle more than 11 per cent, Pacific Coast rivers nearly 8 per cent, Gulf Coast rivers less than 5 per cent, and "other waterways" less than 1 per cent.

Government Expenditures for Waterway Improvement

Congress made its first appropriation for the improvement of rivers and harbors in the United States in 1824. During the ensuing one hundred and five years to 1929, appropriations have continued to be made in such a diversity of ways and for so many specific purposes as to make a division between projects virtually impossible. The same is true of any attempt to distribute detailed expenditures between rivers and harbors, or between one river and another. Even more difficult would it be to ascertain what the flood control expenses have been for each and every river, as distinct from those expenses more properly chargeable to improvements to navigation. Finally, the distribution between expenditures for improvement and those for current maintenance is not always an easy task.

Available statistics on these topics have been brought up to date by a summary table in the latest annual report of the Chief of Engineers. The table shows a grand total of \$1,555,870,849 actually expended for rivers and harbors projects by the United States government, from the beginning of appropriations in 1824 down to June 30, 1929. It also shows unexpended and unallotted balances of \$128,194,747, making a total of waterway improvement appropriations to date of \$1,684,065,596. It is estimated by the Chief of Engineers that \$508,104,210 of additional government appropriations will be needed to complete these projects. If and when these additional appropriations have been made, if and when the present balances have been exhausted, the grand total of United States government investment in our waterways will become \$2,192,169,706, as follows:

Expended to 1929.....	\$1,555,870,849
Balances unexpended on June 30, 1929....	128,194,747
Estimated cost of completion.....	508,104,210
Total	\$2,192,169,806

The grand total of \$2,192,169,806 does not, of course, include subsequent additions authorized by the Rivers and Harbors Act of 1930; it does not include the cost of possible future projects not yet initiated or contemplated; it does not, for example, include any estimate for contributions by the United States toward the construction of the proposed St. Lawrence Deeper Waterway.

These are federal appropriations. In addition, hundreds of millions of dollars, the total amount of which is not ascer-

tainable, have been expended on waterway improvement by States, municipalities, and other local jurisdictions. The outstanding example is the New York State Barge Canal System, on which the people of the state of New York have expended more than \$270,000,000 since 1905 alone. The history of this canal and its cost of construction, maintenance, and operation, have appeared in the preceding section of this survey.

Another example is the expenditure of \$15,500,000 of the \$20,000,000 provided by the state of Illinois for the purpose of connecting Lake Michigan at Chicago with the Mississippi river, by way of the Chicago Drainage Canal and the Illinois river. The Chicago Drainage Canal, consisting of the Chicago river and the Chicago Sanitary Canal, has been financed by the city of Chicago, primarily as a sanitation project.

For further work on the Illinois river, citizens of Illinois sought Federal aid, and secured it in the Rivers and Harbors Act of 1930, to which reference will be made in the next section of this survey.

To the close of the fiscal year ended June 30, 1929, the grand total of federal expenditures on river and harbor projects was \$1,555,870,849.

Applying a more detailed analysis to expenditures on the Mississippi river system and on the intracoastal and other internal waterways, they are subdivided as follows between navigation and flood control work.

Federal Expenditures, 1824-1929			
	Mississippi Ohio	Intracoastal and other internal	Total
Cost of new work, maint., etc.	\$396,687,710	\$95,385,408	\$492,073,118
Operating and care of canals...	72,294,214	23,683,861	95,978,075
Flood control	203,816,912	5,500,361	211,317,273
Total	\$674,798,836	\$124,569,630	\$799,368,466

Excluding now the expenditures made for flood control, government expenditures for *navigation purposes* alone, on rivers and canals to date, have amounted to \$588,051,193, of which the Mississippi river system has absorbed \$468,981,924 (\$396,687,710 plus \$72,294,214), or about four-fifths of the total, as follows:

Navigation expenditures 1824-1929		
Mississippi-Ohio System:		
Cost of new work, maintenance, etc.....	\$396,687,710	
Operating and care of canals.....	72,294,214	
		\$468,981,924
Intracoastal and other inland waterways:		
Cost of new work, maintenance, etc.....	95,385,408	
Operating and care of canals.....	*23,683,861	
		119,069,269
Grand Total		\$588,051,193

* Includes \$508,992 unassigned expenditures.

Take now the \$396,687,710 expended to 1929 on the Mississippi-Ohio System (which is the same as the "Mississippi river system"), for projects and maintenance purposes alone. Table J of the appendix shows that of this total expenditure on the Mississippi river system (1824-1929) \$326,477,692 represents the "cost of new work"; \$57,371,157 was "cost of maintenance"; the balance of \$12,838,861 represented the "value of plant, material, etc., on hand," and minor miscellaneous items.

Distributing this balance of \$12,838,861 to new work and to maintenance in the proportions developed from the principal entries under those two heads, it appears that of the grand total of \$468,981,924 expended to date on the Mississippi-Ohio System, for navigation purposes only, \$337,398,000, or 72 per cent, may be credited to new work or capital account, while the remaining \$131,584,000, or 28 per cent, may be credited to river maintenance and to operating and care of locks, dams, or canals.

The sums annually appropriated by Congress for river and harbor improvement and maintenance are classified under War Department Appropriations for Rivers and Harbors. For the fiscal year to June 30, 1926, the total amount so appropriated was \$40,000,000; for the fiscal year 1927 it was \$50,000,000; for 1928, \$50,000,000; for 1929, \$55,886,310; for 1930, \$50,000,000, and for the fiscal year 1931 (July 1, 1930, to June 30, 1931), it was \$60,000,000.

In addition, each year sundry other appropriations are made, some annual, some indefinite, some covering special projects, and others included under so-called deficiency acts. Usually the expenditures for waterway improvement and maintenance exceed the original appropriations. During the fiscal year ended June 30, 1929, for example, the original appropriations amounted to approximately \$56,000,000; river and harbor expenditures for that year, according to the Chief of Engineers, amounted to \$82,615,431, of which about three-fourths was assigned to rivers and canals (including flood

control work), while the remaining fourth was assigned to harbor improvement and maintenance.

Economic Criteria of Transportation

The principal economic criteria to be applied to the question of transportation of commerce may be stated as follows:

First. In the present system of transportation in the United States, considered with reference to all of the transportation agencies now serving the public, *adequate* to the economic needs and future development of the country? If the agencies are adequate, and if they seem likely to keep pace with the future growth and development of commerce, then the development of additional means of transportation would not be warranted, unless they can show real economies in cost.

Second. If it is found that *additional or new means* of transportation are needed, the question then resolves itself into a choice of the type of transportation agency to be developed. Such a choice will depend on the relative cost and character of service rendered by each of the agencies under consideration.

Third. In considering the question of cost, the basis should be comparative costs, including in those costs all outlays made for construction and for equipment; the cost of carrying the capital; all expenditures for maintenance of way and equipment; depreciation; finally, the direct cost of the transportation itself.

While considering this matter of comparative costs, care should be taken to include in such a comparison all the factors of expense, and to give those factors equal weight for each system of transportation.

Again, the effect on the transportation costs of an existing agency of bringing a new agency into the field must be considered. Development of waterways may tend to decrease the traffic density of the railroads; rail costs per unit of traffic tend usually to increase as traffic declines. If waterway competition is found to cut into rail traffic, thereby increasing rail operating costs per unit, then the further development of waterways might not effect a saving in the aggregate transportation bill of the country.

Fourth. In addition to comparative costs, other service factors should be compared as between different transportation agencies, such as adequacy, continuity and dependability of service, speed, and relative distances between the points served.

In appraising the economic worth of any particular form of transportation or transportation agency, the adequacy, reliability, and continuity of the service should be taken into account and compared with the same qualities in other forms or aspects of transportation. In such a comparison, the question of climatic interference with service is important, as well as the actual and average speed of movement; the possibility of obstructions to movement, such as storms and landslides on the railways, or sandbars and floating logs in the rivers, low water or floods, and other similar problems.

The adequacy of an *open waterway* is usually limited by such weather restrictions as prevent all-year-round operations on the Great Lakes. But an *inland waterway*, such as an improved river or canal, is usually circumscribed also by locks and dams, by the width or widths of channel, by bridges, and by the fact that a mishap to a single tow of barges may block the fairway for days with no possibility of rerouting other blocked tows by some other line, such as is generally available in the case of a blocked railway.

On rivers the problem of regularity is further complicated by the fact that normally it takes longer for the upstream journey than the downstream; also by fluctuating stages of water, which may make it difficult to keep to schedules.

Transport is usually more circuitous by river than by highway or by rail. This point will be more fully developed at a later point.

Lockages on rivers and canals cause greater delays than occur normally at terminal and transfer points of railways. Once a train is on the road, its greater speed compared with that of a steamer or a tow of barges will also tip the balance in favor of the railway.

Finally, the relative flexibility of the transportation network should be considered; whether branches or connections can be thrown out in branch or spur form, to serve areas within a considerable radius. Railways can and do install switching and industrial tracks at many points, which tie important factories, warehouses, etc., into the whole industrial fabric by means of direct rail connection. They give, in brief, a "full community" service.

Government Assistance

Our national policy should be to foster and preserve every kind of transportation that the public needs and can profitably use.

The wishes of individuals or communities are necessarily influenced by personal or local desire to place themselves in a position of vantage industrially with regard to their competitors. Under these conditions, private capital will usually supply the means to develop the hoped-for advantage.

Such advantage might even attain to the proportions of municipal and state-wide benefit, and funds might be appropriated from local government treasuries to forward the purposes, even though the direct benefit might accrue to only a minority of the people, on the ground that those benefits would eventually seep through the whole mass as a result of the influx of wealth that would flow into the community, and that the public money so expended would eventually be returned in the enhanced value of all property and in its taxable value.

When the area concerned covers the whole country the problem becomes more complicated. Before public funds are expended, searching inquiry should be made as to the public necessity of the development of a new transportation agency. It should be demonstrated that the whole country or at least a considerable proportion of it is suffering from inadequate transportation facilities. And this condition of inadequacy must be found to be not only retarding the industrial development of the whole territory involved, but it must also be made clear that further extension of existing agencies could not be made without the expenditure of such a large sum as would be uneconomic.

It has usually been held that the development of waterways is a governmental function. Fundamentally, the extent of this function, whether for the United States, or for any other country, rests on broad principles of public policy. Only the people as a whole can lay down such a policy, and to the people it must be entrusted for decision, after they have been made acquainted with all the facts in the situation.

The problem of developing inland waterways of this general nature, consisting in the improvement of rivers, the canalizing of rivers, or the complete construction of canals, resolves itself into a question of governmental assistance. In fact, the government is usually called upon to undertake the whole task, supplying the necessary funds, carrying out the work directly or under contract, and indefinitely continuing the maintenance of the artificial channel after it has once been completed.

In doing so, the government is subsidizing one form of transportation as against another. There is no gainsaying the fact that a governmental canal or governmentally improved river, which is almost universally held out to commerce free of tolls or other charges, is a direct competitor with land agencies of transportation, largely because indirectly subsidized by the state.

In this connection it is sometimes pointed out that the railways in the earlier history of the country received grants of land from the government, in order that the economic development of the country might be hastened. On the other hand, the government in the early days also subsidized waterway improvements by grants, loans, and in other ways.

The period of grants and subsidies is past, because the pioneering stage of railway development has gone by. Land-grant railways are supplying the government with transportation of mail, freight, troops, and military supplies at reduced rates, in return for previous land grants. It has been computed that the railways as a whole have already returned to the government a *quid pro quo* for its assistance, that they must continue their reduced government rates indefinitely, and that the country as a whole was greatly benefited by railway construction to the Pacific Coast.

The present problem is to consider alternative forms of transportation development on their current economic merits. Assuming that waterway development offers a practical and economical method of transportation for the future, does that fact warrant the government in entering upon a large program of commercial subsidy?

The answer to this question must lie in a determination of the best economic interests of the people as a whole. In appraising those interests, the adequacy and efficiency of the present transportation systems must be measured, and also the alternative benefits or disadvantages growing out of the development of one form of transportation to the possible detriment of another form.

Government in Business

One phase of this question of governmental assistance to transportation deserves special mention. Even though it were assumed that it is sound public policy to supply inland waterways to the people, free of tolls, on which private boat operators may carry freight at rates lower than rail rates, is it also sound policy for the government itself to enter the business of freight transport, and thus compete with both private boat

operators, private truck operators on the highways, and privately operated rail carriers?

The answer to the general question of government in business has been rendered in the negative, by the American people, whenever it has been presented to them in one form or another.

For this reason, the creation and continuance of the Inland Waterways Corporation, a government-owned and subsidized freight carrier on the Mississippi and related rivers, has been justified by its proponents on the ground that it is a temporary economic experiment, and that as soon as proof is supplied by the experiment, that private freight carriage can be made remunerative, the government will retire from the field. The latest report of the corporation intimates that this object is being accomplished, and foresees the development of private fleets that will eventually drive the government off the river.

Traffic Congestion

The statement is repeatedly made that the present means of transport will not suffice to meet the future growth of traffic incident to the natural growth of the country in population and wealth.

Secretary of Commerce Hoover, in addresses throughout the country advocating the consolidation of the scattered sections of improved waterways, made the statement that the growth of population within 25 years would produce such an increase of traffic that the railways would be unable to meet it.

If the history of the past is any basis for a forecast of the future, the present several means of transport will undoubtedly keep ahead of the growing demand. The railways in 1929 handled the largest tonnage and ton-mileage in their history, and did it with a surplus of equipment and a margin of capacity at all times. For several years no traffic congestion has occurred, and reports of the Department of Commerce have emphasized the remarkable improvement in the transportation service rendered by the railway industry.

In the last analysis, the questions may be condensed into one brief inquiry, as follows: Is it sound economic policy to build up new agencies of transportation, paralleling and competing with those already established, if the latter are giving satisfactory service and can continue to do so as the population and the business of the country grow, simply on the ground that the new agencies can operate cheaply because of subsidy or other government assistance?

Comparative Transportation Costs

No phase of waterway transportation has received greater attention than that of its relative cost, and perhaps none deserves more careful study. Unless existing systems of land transport are inadequate to the traffic needs of a country, the question of waterway development resolves itself into a primary consideration of its cost, compared with the cost of transport by land.

Suppose a new agency of transportation is under consideration, and suppose it to be inland waterways. If it can be demonstrated that these can carry goods more cheaply than other existing agencies of transport, all phases of cost being included in the comparison; that they can and will provide not only cheaper but wholly adequate service, so that everybody may avail themselves of it; that such service can be rendered safely and dependably, year in and year out; then they are justified, and their development would be sound economic policy, on the theory of the greatest good to the greatest number.

The relative economy of any form of transport should, however, pass the test of accepted and prescribed accounting methods. Real and accurate costs are wanted; not the cost of some particular scheme today, but the continuing cost to the country of a plan or program in its entirety. That many waterway schemes have been abandoned and the money has earned no return is not in itself a reason for eliminating them from further consideration, provided other economic factors are in their favor.

To construct and operate any system of transportation involves large expenditures of money. We may briefly consider the principal elements of expenditure, as outlined under the eight following heads:

1. The cost of construction of the system itself, which usually runs into hundreds of millions of dollars for any large scheme. In the case of a railway, this cost covers the right of way, tracks, and other permanent structures. In the case of an inland waterway, it covers the cost of construction of the canal, or improvement of the river, with locks, dams, and other appurtenant structures.

2. The annual charge for capital, that is, the annual interest charge on the money invested in the construction or improvement.

3. The cost of the necessary equipment, whether in the form of railway locomotives and rolling stock, or ships and barges.

4. The annual carrying charge for capital invested in equipment.

5. The cost of maintenance, both of the transportation way (railway right of way and tracks, or river and canal), and of the equipment operated thereon.

6. Proper charges for depreciation on plant and equipment.

7. Necessary payments of insurance and taxes.

8. Last, but by no means least, the direct cost of the transportation service itself, including transportation wages, outlays for fuel, materials, and other supplies, and the usual cost of supervision and general expense.

Cost Comparisons

In making the comparisons of rail and water transportation costs, here outlined, the fundamental requirement is to recognize that the railway meets all the costs outlined above; and that its freight charges cover them in full. In the case of water transport, part of the costs—such as maintenance of river or canal (maintenance of way), and carrying or interest charges on the construction cost—are met from the government treasury, while only a part—such as maintenance of equipment and direct transportation costs—enters into the water carrier's own cost. Its charges therefore cover only a portion of the total cost of transportation by water, the balance of the cost being met by the taxpayers. For this reason, water carriers can usually compete with rail carriers on a lower basis of rates, their own direct transportation costs being low, and the balance of the total costs involved in their operations being paid by the government.

But whether some of the costs of water transportation are indirect and are "hidden" in government accounts or not, they none the less represent parts of the total or inclusive cost of transportation, and should be taken into consideration in any complete and accurate comparison of transport costs by water and by rail.

Waterway Savings

Closely connected with the question of comparative transportation costs is the further question whether transport by inland waterway effects any savings, taking the nation as a whole. This is a question much discussed and seldom fully understood, because the term "cost of transportation" is so rarely utilized in the same sense by any two persons. Yet it is one of the fundamental questions involved in the whole problem of waterway development.

The savings from inland waterway transportation have been computed by many persons, yet few of them have made allowance for the "hidden" costs in the movement of goods by water; that is, the cost of constructing or improving the waterway and the cost of maintaining the waterway, which are almost always met from the government treasury (either federal or state) and which do not therefore form a part of the direct cost of handling the traffic. When no allowance is made for these hidden costs, the conclusion is usually reached that inland waterway transportation is cheaper than transportation by rail, and that water shipments bring certain definite savings, which are computed by comparing rail freight rates with water freight rates.

Much has been heard in recent years of the saving made by shippers who have been in position to make use of the government barge line. This "saving" is presumably the amount of the 20 per cent differential by which rates by barge line are supposed to be below those of the railways on the same goods to the same destination. The Treasurer of the Inland Waterways Corporation specifies the amount of the saving in 1928 as \$2,702,200. This is equivalent to \$1.44 per ton on the 1,872,597 tons transported in that year. The freight charges on the barge line averaged \$3.44 per ton in 1928; if these charges were 80 per cent of what rail charges would have been had the goods gone by rail, the average rail charge per ton would have been greater in the ratio of 100 to 80, and would thus have been \$4.30. The saving on the basis of this computation would be 86 cents per ton, the difference between \$4.30 and the actual charge of \$3.44. This admittedly rough computation would make the "savings" in 1928 an aggregate of \$1,610,433 (derived by multiplying 1,872,597 tons by 86 cents), instead of the \$2,702,200 claimed. Even the smaller aggregate takes no account of the "hidden" costs of maintaining the rivers, the fact that the government barge line earned no adequate rate of return on its investment in that

year, and other similar factors of indirect transportation cost.

There follows a section in which total transportation costs on the Mississippi, the Ohio, and the New York State Barge Canal are computed, so far as possible from available statistics, and are then compared with corresponding rail transportation costs.

In comparing river and rail transportation costs, one factor for which allowance must be made is the greater circuitry of river routes. That is, freight transported by river between any two points moves almost invariably over a longer distance than if transported by rail between the same two points. River haulage is more circuitous than rail haulage, and costs per ton-mile by river and rail cannot therefore be compared, without making allowance for the longer water haul.

While definite relationships between the length of rail and river haul vary according to the particular river and the particular points involved, and while rail distances between any two points may also vary between two or more rail lines serving those points, the following comparison will throw some general light on the question. It is a comparison of distances between important points on the Mississippi, Ohio, Missouri, and Warrior rivers in the United States, compared with the rail distance in each case, as computed and published by the United States Department of War.

Relative Distances in Miles by River and Rail

From	To	River	Rail	Excess River distance
New Orleans	St. Louis	1,164	718	62.1%
St. Louis	Minneapolis	687	588	16.8
Pittsburgh	Cairo	979	648	51.1
Kansas City	St. Louis	408	278	46.8
Sioux City	Kansas City	416	289	43.9
Birmingham	New Orleans	584	355	64.5

On the Lower Mississippi, where river traffic is dense and where the great bulk of the Mississippi traffic moves, the excess distance by water route is more than 60 per cent. On the Ohio river, between Pittsburgh and Cairo, it exceeds 50 per cent. It, therefore, seems conservative to assume an excess water haul of 50 per cent for those two rivers and to add such a proportion to river transportation costs before making a comparison with rail costs.

Mississippi River Costs

With respect to any inland waterway, whether it be a river, a canalized river, or a canal, it is difficult to set up a complete and accurate statement of transportation costs. There enters the problem of capital or construction costs vs. current or maintenance costs of the waterway itself. In the case of many rivers, there is a further complication, in that some of the funds spent for river improvement are designed to assist navigation, while some are expended for flood control purposes, and it is not always easy to segregate the two classes of expenditure. Terminal costs are involved, including the capital cost of water terminals, as well as the current cost of terminal maintenance and operation. The direct cost of transporting freight by water is frequently difficult to ascertain. These are represented by either (a) the charges made for freight carriage by common carrier boat or barge lines, or (b) the average cost of handling freight per ton-mile, when transported by a corporation for its own use, as in the case of a steel company operating its own barges for the transportation of coal or ore or other raw materials to its plant, and finished products from its plant.

But some calculations can be made, and these are attempted in the following paragraphs.

As already pointed out in an earlier section, more than \$674,000,000 has been spent by the federal government on the Mississippi-Ohio System. Of this total, approximately \$469,000,000 represents expenditures designed directly to assist or promote navigation, while the remaining \$205,000,000 represents expenditures designed primarily for flood control. This \$469,000,000 of Mississippi-Ohio System federal navigation improvement expenditures can be segregated among the several sections of the system, \$172,000,000 being applied to the Mississippi Section, that is, the Mississippi river and its tributaries, other than the Missouri and the Ohio rivers. About \$120,000,000 of this amount represents broadly the "cost of new works, or capital construction cost, as contrasted with current costs of maintenance." To this amount should be added the \$15,500,000 already expended on the Illinois Waterway by the state of Illinois, all for navigation improvement costs. This brings Mississippi Section costs for direct navigation purposes up to \$135,500,000.

Assuming an annual carrying charge of 4 per cent on the capital cost of \$135,500,000, the interest charge on the capital cost of Mississippi Section navigation improvements amounts to \$5,420,000 per year. There was reported for the Mississippi Section in the calendar year 1928 a total of 2,951,045,202

ton-miles of freight traffic. Dividing this total into the \$5,420,000 of annual interest or carrying charge on capital improvements, the result would be 1.84 mills per ton-mile.

In 1929, the latest fiscal year for which statistics are available, the federal government expended \$2,238,000 on the Mississippi Section for navigation maintenance, plus \$2,515,000 of maintenance expenditures by the Mississippi River Commission for dredging, revetment, and contraction works. This makes a total of \$4,753,000 for navigation maintenance on the Mississippi Section in 1929. The same ton-mileage of 2,951,045,202, divided into this \$4,753,000 of current maintenance cost, gives a result of 1.61 mills per ton-mile.

The average charge by the Inland Waterways Corporation in 1928, for the carriage of freight on the Upper and Lower Mississippi divisions, was 4.03 mills per ton-mile. This makes no allowance for any return on its investment of more than \$20,000,000 in plant. Its cost per ton-mile, on a basis that would take into account overhead expenses and a return on investment, would probably exceed 4½ mills per ton-mile. For the purpose of a conservative statement here, however, the freight cost of carriage on the Mississippi is taken as 4.00 mills, including all terminal costs.

Combining these several costs per ton-mile, we have the following:

	Mississippi River—1928 mills
Annual capital cost per ton-mile	1.84
Maintenance per ton-mile	1.61
Freight carrying cost per ton-mile	4.00
	7.45
Allowance of 50% for circuitry	3.72
Total	11.17

Thus the estimated cost per ton-mile on the Mississippi in 1928, including the annual cost of carrying the capital, river maintenance, and direct cost of the transportation itself was not less than 7.45 mills. This total cost may be regarded as a conservative estimate. Furthermore, it contains no allowance for the greater length of river than of rail mileage. Making an allowance of 50 per cent for greater river circuitry, the cost per ton-mile on the Mississippi river, comparable with rail costs, would be increased by such percentage, or from 7.45 to 11.17 mills.

Eight railway lines more or less closely parallel the Mississippi River at various parts of its course. These lines, with their average freight charges per ton-mile in 1928, are as follows:

Road	Receipts per ton-mile—1928 (mills)
Chicago, Burlington & Quincy	9.82
Gulf, Mobile & Northern	10.33
Illinois Central Railroad	8.56
Louisiana Ry. & Nav. Co.	14.75
Missouri Pacific	10.41
Mobile & Ohio	9.31
St. Louis-San Francisco	13.19
Yazoo & Mississippi Valley	14.49
Weighted Average—8 lines	10.09

The rail costs average 10.09 mills per ton-mile; the estimated minimum transportation costs on the Mississippi river average 11.17 mills per equivalent ton-mile, after allowance is made for the greater circuitry of the water route.

This comparison does not take into account the different character of traffic moving by water and by rail. As a larger proportion of water traffic than of rail traffic is made up of low-grade commodities, it follows that the comparison of water costs with rail costs should include—as to the railway—a lower freight rate than the average rate on all commodities. To this extent, the comparison is unfavorable to the railway.

Taking the Mississippi River as a specific example, we have seen that of the total tonnage moved on that river in 1928, 62.75 per cent represented non-metallic minerals, chiefly coal, sand and stone, gravel, petroleum and its products. The corresponding percentage in 1928 for the eight railways listed above, which more or less parallel the Mississippi river, was 51.8 per cent.

The foregoing comparison of costs on the Mississippi and by rail comprises a conservative statement of the river costs, and to a certain degree is unfavorable to the railway side of the comparison. The respects in which the comparative river costs are understated are as follows:

1. Capital costs on the river include none of the government expenditures for flood control, some of which might properly be charged to navigation.
2. Capital costs on the river include none of the expenditures for new work, for dredging, revetment work, etc., by the Mississippi River Commission.
3. The maintenance costs shown for the river include

no portion of the maintenance costs of flood control work, some of which might properly be charged to navigation.

4. The transportation charge of four mills per ton-mile, included in the comparison for the river, is less than the actual cost incurred by the Inland Waterways Corporation in transporting an average ton one mile.

5. The allowance of 50 per cent for greater river mileage is less than the actual average, weighted according to traffic handled on the Mississippi River as a whole.

6. The character of the traffic handled by carriers on the river is generally of lower grade than that handled by the railways with which the comparison is here made.

On the other hand, the ton-miles used for the river may not be fully complete, and to that extent river costs per ton-mile would be overstated. In addition, there is some passenger traffic on the river, which should properly be charged with its portion of the improvement and maintenance costs. These off-setting items, it is believed, are not of sufficient importance to balance the items with respect to which river costs have unquestionably been understated.

Missouri River Costs

Capital costs on the Missouri river and its tributaries to June 30, 1929, were about \$32,000,000. This excludes river maintenance costs, and includes only the "cost of new work" to date. The annual carrying charge on this amount, at 4 per cent, would be \$1,280,000.

The ton-mileage in 1928 aggregated 5,901,273 on the Missouri River section. Dividing this total into the annual carrying charge, the result is about 22 cents per ton-mile. Missouri river maintenance costs in the fiscal year 1929 were about \$770,000, or 13 cents per ton-mile.

Even without any estimate for the cost of handling the freight on the river, the capital and maintenance costs of the small amount of traffic moving on the Missouri river and its tributaries in 1928 was about 35 cents per ton-mile.

Ohio River Costs

The Ohio Section, consisting of the Ohio river itself, the Alleghany and Monongahela rivers, and other tributaries, cost the federal government to June 30, 1929, an aggregate of \$250,130,031. Of this amount, \$178,000,000 represents capital construction costs or "cost of new work."

Ton-mileage of freight traffic in 1928 was 2,702,416,316 ton-miles, probably 90 per cent of which consists of comparatively low-grade traffic, such as coal, coke, sand, gravel, iron and steel. Taking the capital costs to date, which amounted to \$178,000,000 for the Ohio Section to 1929, and applying a 4 per cent annual carrying or interest charge, the result is \$7,120,000. This averaged 2.63 mills for the 2,702,416,316 ton-miles of traffic on the section.

Maintenance costs on the section during the fiscal year 1929 aggregated \$4,340,000. These maintenance costs of \$4,340,000, spread over the same ton-mileage, averaged 1.61 mills per ton-mile.

The average cost of conveyance on the Ohio Section has been variously estimated. For the purpose of a conservative estimate in this discussion, the figure used for the entire Ohio Section will be 4 mills, including all terminal costs.

In tabular form, these costs on the Ohio Section are as follows:

	Ohio River—1928 (mills)
Annual capital cost per ton-mile	2.63
Maintenance per ton-mile	1.61
Freight carrying cost per ton-mile	4.00
	8.24
Allowance of 50% for circuitry	4.12
Total	12.36

As in the case of the Mississippi, an allowance of 50 per cent is made (for purposes of comparison with rail costs), because of the greater distance via river than by rail. Between Pittsburgh and Cairo, the excess river distance is 51.1 per cent.

Seven railway companies operate lines more or less parallel with the Ohio River section. The average receipt per ton-mile of these seven railways, individually and collectively, was as follows in 1928:

Road	Receipts per ton-mile—1928 (mills)
Baltimore & Ohio	9.74
Chesapeake & Ohio	6.20
Louisville & Nashville	8.51
Monongahela	11.35
Norfolk & Western	6.49
Pennsylvania	10.16
Pittsburgh & Lake Erie	11.47
Weighted Average—7 lines	8.83

Thus the average receipt per ton-mile of the seven railways in 1928 was 8.83 mills per ton-mile, compared with an estimated average of not less than 12.36 mills for equivalent transportation costs on the Ohio river section.

As in the case of the Mississippi river, so on the Ohio river section is the proportion of low-grade traffic greater than on the paralleling rail lines. Of the Ohio river tonnage in 1928, 90.3 per cent was composed of non-metallic minerals; on the Monongahela it was 92.4 per cent; on the seven railways listed above, the corresponding proportion in 1928 was 66.2 per cent. This comparison of costs on the Ohio and via rail is therefore unfavorable to the railways.

New York State Barge Canal

The New York State Barge Canal is a state-built, state-owned project and is maintained at public expense. Privately-owned boats and barges operate upon the canal, but bear no share in the expense of providing or maintaining the waterway, operation of locks, etc. Because of this, the rates which the barge owners charge shippers of freight are comparatively low, and reflect but one of the three principal elements entering into the total cost of producing the transportation service. These three elements, as already outlined in this section, are:

1. Cost of carrying the capital investment,
2. Cost of operation, maintenance and repair, and
3. Boatmen's charge for conveyance.

Obtaining the basic data from the annual reports of New York state officials in direct charge of canal affairs, these costs have been determined for the years 1922 to 1929, inclusive. The total cost of each element for each year has been divided by the ton-mileage reported for the corresponding period, and a unit cost thereby obtained. Summing up the unit costs of the three elements, a total transportation cost per ton-mile is thus obtained for each year.

The total transportation costs per ton-mile are shown in the following text table:

New York State Barge Canal

Year	Total cost of transportation per ton-mile (mills)
1922	29.92
1923	29.14
1924	27.68
1925	23.13
1926	23.65
1927	23.69
1928	19.51
1929	19.41

Method of Computation

The basic figures underlying the foregoing averages were obtained from the annual reports of the Superintendent of Public Works of the State of New York, the annual reports of the Comptroller of the State of New York, and other official State publications.

In determining the capital investment, only expenditures made for construction purposes since April 7, 1903, have been included. Of the more than \$270,000,000 expended on the Barge Canal through June 30, 1929, approximately 65 per cent went for construction purposes and may be properly termed the capital investment in the enterprise. This item is reported by the State Comptroller as of the close of each of the fiscal years 1927, 1928, and 1929, as follows:

	Year ended June 30		
	1927	1928	1929
Erie, Champlain & Oswego Canals	\$141,260,794	\$141,446,431	\$141,609,052
Cayuga and Seneca Canal	8,339,178	8,339,178	8,339,178
Barge Canal Terminals	26,053,735	26,086,108	26,272,911
Total canal construction accounts	\$175,653,707	\$175,871,717	\$176,221,141

Using an average rate of 4 per cent on capital, the annual cost of carrying this investment may be computed. The canal bonds issued by New York State carry an average interest rate of slightly more than 4 per cent. Applying 4 per cent to the construction cost, the carrying charge works out as \$7,026,148 for the year 1927, \$7,034,869 for the year 1928, and \$7,048,846 for the year 1929.

The annual reports of the Superintendent of Public Works contain each year a statement of the expenditures for operating expenses of New York State Canals. This statement does not include expenditures on canal account made by other state departments. Such items, however, are relatively unimportant in amount, and in order that a uniform basis may be used throughout the superintendent's statement will be followed.

The amount of this item, including canal maintenance and operation, for each of the years 1922 to 1929, was as follows:

Operating Expenses—New York State Barge Canal

Year ended June 30	Amount
1922	\$2,643,190
1923	3,303,331
1924	3,590,219
1925	3,184,969
1926	3,578,200
1927	4,135,250
1928	4,100,716
1929	3,621,076

The rates which the boatmen charge shippers vary considerably during the navigation season and it is difficult to ascertain the average charge for any particular year. A conservative rate of 4.50 mills per ton-mile was used in our Bulletins 36 and 40 for the years to 1925, and the same rate will be assumed to apply to the years since 1925.

The total number of ton-miles reported for the freight traffic of 1927, 1928 and 1929, were as follows:

1927	581,832,903
1928	741,878,620
1929	715,551,472

Dividing these respective ton-mile aggregates into the amounts found above as the carrying charges for the same three years (\$7,026,148 in 1927, \$7,034,869 in 1928, and \$7,048,846 in 1929), the average carrying charge per ton-mile becomes

12.08 mills in 1927
9.48 mills in 1928
9.85 mills in 1929

Dividing the same ton-mile aggregates into the respective canal operating expenses of the same years (\$4,135,250 in 1927, \$4,100,716 in 1928, and \$3,621,076 in 1929), the average operating expense per ton-mile is found to be

7.11 mills in 1927
5.53 mills in 1928
5.06 mills in 1929

The third element of cost, the boatmen's charge, has already been estimated at 4.50 mills per ton mile in each of the same three years.

Combining now these several computations, we have the following total canal transportation cost per ton-mile in 1927, 1928, and 1929:

	Average cost per ton-mile		
	1927 (mills)	1928 (mills)	1929 (mills)
Cost of carrying the capital investment	12.08	9.48	9.85
Cost of operation, maintenance and repair	7.11	5.53	5.06
Boatmen's charge for conveyance	4.50	4.50	4.50
Total cost	23.69	19.51	19.41

This same comparison has been carried back to 1922, when ton-mile statistics on the Barge Canal were first made available to the public.

For the years from 1922 to 1929, the total cost of transportation via New York State Barge Canal, per ton-mile, was approximately as shown in the following table. Average receipts per ton-mile by rail, in the Eastern district of the United States (north of the Ohio and Potomac rivers), are set up in parallel columns for purposes of comparison.

Year	Transportation Cost per Ton-mile (mills)	
	By Canal	By Rail (Eastern U. S.)
1922	29.92	11.72
1923	29.14	11.04
1924	27.68	11.22
1925	23.13	11.07
1926	23.65	10.94
1927	23.69	10.93
1928	19.51	10.96
1929	19.41	10.90

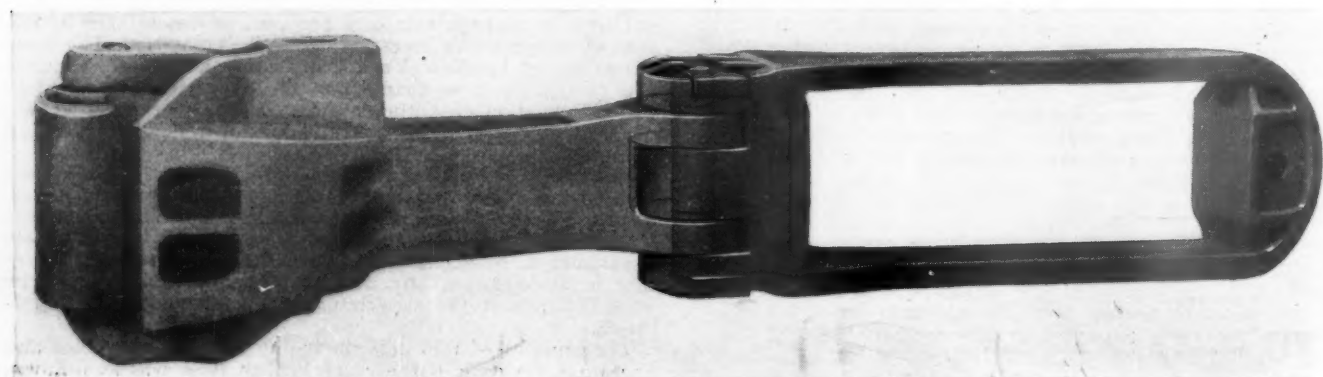
Inasmuch as a large proportion of the total cost of canal transportation is made up of relatively stable charges—such as interest on construction costs, and the cost of maintaining the canal—the considerable growth of traffic from 1922 to 1929 tended to reduce the cost of transportation per unit of traffic—that is, per ton-mile. In 1922, canal costs of transportation were about 2½ times as great as rail costs of transportation; in 1929 the canal cost was nearly twice as great as the rail cost.

Universal Pivot Yoke

A UNIVERSAL Pivot coupler yoke, recently developed and placed on the market by the Universal Draft Gear Attachment Company, 332 S. Michigan avenue, Chicago, is designed to overcome weaknesses in the standard horizontal keyed yoke now in general use. The transition from rivet-secured yokes to the cross key connection was rapid and, although the cross key provides greater strength than the old form of rivets and permits a quicker exchange of couplers, a serious amount of undesirable slack sometimes develops; further, in curving, the flat butt end of the coupler against the follower plate causes a twisting and side movement of the follower and yoke and does not at all times allow for full side movement in the striker. The accumulated and progressive slack between the yoke and coupler results in excessive wear on drawbars and other parts which tends to subject the draft gear and attachments to stresses which frequently cause failure.

The Universal Pivot yoke has been developed to remedy these conditions. It provides a flexible connection between the coupler and the draft gear and permits movement for the full width of the striker opening. A full flat bearing is presented to the follower at all times and without the wedging action of the ordinary yoke. It is adaptable to any make of coupler and provides a stronger connection without the objectionable slack common to the standard cross key arrangement. The pivot pin is 2½ in. in diameter, of heat-treated alloy steel. This, with a close fit between the coupler and yoke, insures against any offset of the pin in service, as all buffing shocks are transmitted through these fits, the pins being in action only in draft and then in quadruple shear. Convenient means for removal of the pin is provided as well as for securing it in place by means of sheet metal retainers passed through yoke lugs above and below the pivot pin and bent down on either side to hold them in place.

The butt end of the coupler occupies less than the vertical space between the carry iron and the striker, thus permitting the use of the regular striker and carry iron. This feature is said to be peculiar to the Universal Pivot type of yoke.



Universal Pivot Coupler Yoke Developed by the Universal Draft Gear Attachment Company

Adopt Program for Railroads

Executives in New York and union leaders in Chicago take firm stand on competitive situation

THE Association of Railway Executives and the train service unions, at separate meetings this week, each promulgated a definite program outlining a series of proposals designed to cope with the unfavorable state of railway earnings and traffic. The railway executives, meeting on November 20 at New York, urged that the legislative and regulative authorities adopt "a new spirit and attitude" toward the railroads. The program of the unions was adopted at a meeting in Chicago where six-hour day proposals were also under consideration.

The following statement was authorized by the Association:

The Railroads' Problem

"Without referring to or including in any way the results of the business depression of 1930, railroad freight traffic during the thirty years ending in 1920 increased more than seven per cent annually, while during the nine years from 1920 to 1929 inclusive, the average annual increase was less than one per cent. At the same time passenger traffic showed an almost steady gain to 1920, the annual increase during the preceding thirty year period being more than six per cent. During the nine year period ending in 1929, there was an annual decrease of more than three per cent per year. From 1920 to 1929 inclusive, there has been an increase of more than 181 per cent in the number of passenger automobile registrations and nearly 236 per cent increase in the number of motor trucks in operation. Reports also show an increase of from 10,000 motor buses in operation in 1920 to 92,500 in 1929 or an increase of 825 per cent. Intercoastal tonnage through the Panama Canal increased from 1,372,388 tons in 1921 to 10,119,028 tons in 1929 or an increase of 637 per cent. There also was an increase from 83,150,182 tons in 1920 to 160,927,905 tons in 1928 or 93.5 per cent in the amount of traffic moved over inland waterways.

"Contributing factors to the decline that has taken place in the amount of freight traffic handled by the railroads have been the pipe lines, high-power electric lines and the newest development of the piping of natural gas from the wells to large centers, which still further will reduce coal traffic.

"In so far as any form of the above service is legitimate, and a natural economic development, the railroads have no right to complain. The public is entitled to the best transportation at the lowest reasonable cost. However, where the rail carriers are prevented through legislation or regulation from fairly competing with new or old forms of transportation, or where the service rendered by the competitor is a subsidized one, such unfair handicaps should be removed.

Present Operating Results

"The above refers to loss of traffic through competitive reasons. The traffic that remains has produced the following results. Average receipts per ton mile declined 15.6 per cent between 1921 and 1929, resulting in a cumulative loss to the railways of \$5,769,835,000 in freight revenue during that period. This closely ap-

proximates the \$6,855,416,000 that has been spent for capital expenditures during the same period. Operating expenses per traffic unit handled were reduced 21.2 per cent between 1920 and 1929.

"This reduction in operating expenses per traffic unit has been accomplished largely through the enormous expenditures for capital improvements in the nine year period which provided improved locomotives and equipment, improvement in the physical structure, improvement in methods and which was done in conformity with the program of the railroads entered into in 1923.

"Notwithstanding this economy and efficiency, rates have never produced the return on property investment contemplated in the Transportation Act, namely 5¾ per cent, for the railroads as a whole. The rate of return on property investment in 1926 was 4.99 per cent, the highest for any year since the war. The rate in 1929 was 4.84 per cent while for the first nine months of 1930, it was 3.54 per cent.

"Reductions in rates, beginning with the year 1921, have continued up to the present moment. These reductions were brought about by action of the Interstate Commerce Commission; through reductions made voluntarily by the carriers to meet competition, including that of unregulated or subsidized transportation; and through reductions made voluntarily by the carriers for the development of industrial enterprise and communities. This is the situation in which the railroads of the country find themselves.

"What the railroads are asking is a new spirit and attitude on the part of legislative and regulative authorities through a recognition that the railroads are engaged in a business subject, as other business is, to the operation of economic laws and should accordingly be permitted to adapt themselves quickly to changes in economic conditions which confront them; and through a recognition that railroad operation is a fundamental public necessity and that the maintaining at all times of an efficient national system of transportation, adequate to the business needs of the public, is necessary, if we are to progress as a nation.

The Program

"The railroads at this time make the following recommendations:

1. A respite from rate reductions and suspensions by regulating bodies, both intra and interstate, and from action that will increase the expenses of the carriers.
2. A respite from legislative efforts of either the national or the State legislatures that would adversely affect rates or increase the expenses of the carriers.
3. A withdrawal of governmental competition both through direct operation of transportation facilities, as well as indirectly through subsidies.
4. A fairly comparable system of regulation for competing transportation service by water and on the highways, involving affirmative legislative action as follows:

"As regards water transportation, legislation should cover

- A. Extending jurisdiction of the Interstate Commerce Commission over port to port rates, to include—

- B. Determination of just and reasonable rates, and prohibition of discriminatory and unduly prejudicial rates.
- C. Publication of and adherence to rate schedules.
- D. Proper service requirements.
- E. Certificates of public convenience and necessity after proper showing.
- F. Opportunity for railways to enter this field of transportation under proper supervision, but without handicap as compared with other transportation agencies. The Panama Canal Act should be modified so as to permit railroad operation of waterway service in conjunction with rail service.
- G. And, in addition to affirmative legislative action, the retention of the flexible character of section 4, Interstate Commerce Act, sympathetically administered, with fair opportunity on the part of rail carriers to obtain relief after proper showing and including transcontinental traffic.

Highway Transport

"As regards commercial highway transportation, by bus or truck, legislation should cover

- A. Extending jurisdiction of the regulatory authorities over commerce carried by such agencies.
- B. Certificates of public convenience and necessity after proper showing.
- C. Proper protective requirements for financial responsibility and surety bonds or insurance.
- D. Adequate requirements for just and reasonable rates, both maximum and minimum, with provision for publication thereof and adherence thereto, and proper inhibition against undue and unjust discrimination.
- E. Proper service requirements.
- F. Adequate authority for rail carriers to operate such facilities, without discrimination in favor of other transportation agencies in the same field.
- G. Adequate provision for privilege or license fee imposed on all motor vehicles for hire or profit using highways, so as properly to participate in construction and maintenance costs of highways."

The Unions' Policy

A portion of the work intended to be accomplished by the meeting of 800 general chairmen of the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen and Enginemen, the Brotherhood of Railroad Trainmen, the Order of Railway Conductors and the Switchmen's Union of North America at Chicago was completed on November 19 in the adoption of resolutions decrying the unregulated competition with the railroads of inland waterways, pipe lines and motor coach and truck lines. The other matter before the meeting, which has been in session since November 12—unemployment relief through the setting up of a program looking toward the adoption of a six-hour day and a twenty-six-day month in railroad service—was still a matter of discussion on November 19. Early in the sessions, W. L. Shauberger, general chairman of the locomotive engineers on the Pennsylvania, Lines East, was selected as chairman of the joint meeting and E. B. Thompson of the conductors was named vice-chairman.

A committee of 25 consisting of five from each of the unions has been in executive session for a week drafting a program for the handling of the shorter day and month campaign. On November 19 it brought back to the general group a majority report and a minority report. Each of the reports contained the resolutions outlining a definite stand on waterways, pipe lines and coach and truck lines, and these were adopted by the

general group. Certain portions of the reports which were not in accord on the shorter working period matter were referred back to the committee of 25 in an effort to obtain proposals that would be acceptable to each of the brotherhoods involved. It was supposed that the final report which would be returned to the general meeting would consist of a compromise which would reconcile those who favor a six-hour day and those who incline toward the limiting of earnings to an equivalent of a twenty-six-day month. It was expected that a vote would be taken on a definite proposition by November 21.

Waterway Subsidies

The resolution concerning inland waterways placed the meeting on record as protesting against the use of the taxpayers' money for the further subsidizing of such an "unfair method of transportation, which is depriving so many of these positions." It also directed the legislative representatives of the brotherhoods to induce the Interstate Commerce Commission to refuse to grant further permits for the operation of barge lines and to oppose further legislation intended to encourage barge lines and further appropriations for their operation and extension.

The general chairmen protested against the further encroachment of common carrier pipe lines upon the field of transportation and called upon the governmental and regulatory bodies as well as the commission to take steps which will prevent and discourage their further extension with a resultant loss to railroads and their employees. The legislation boards of the brotherhoods in oil-producing states were asked to adopt means calculated to protect their members where their future welfare is threatened by the pipe lines.

In a like manner the meeting asked that motor coach and truck lines be subjected to the same regulation that the railroads now bear. This resolution favored heavier taxation for highway lines, establishment of just and reasonable rates in line with those of competing forms of transportation, and regulation to make their operations safe not only for the passengers but private vehicles using the highways.

* * *



German State Railway Multiple Unit Cars at Starnberg, near Munich

Approximately 400 route miles of the German State Railways in the vicinity of Munich, including most of the Bavarian division, are now operated electrically. The single phase alternating current system is used. The installation is modern and in good condition, according to the report of G. I. Wright and A. T. Dice, Jr., of the Reading Company. Both multiple unit cars and locomotives, capable of speeds in excess of 60 m. p. h., are in use. Overhead construction is of the two wire simple catenary type, and two pantographs are used on all motor cars. The track was reported to be in excellent condition.

R. B. A. Meets in New York

Favors joint railway action to maintain rates—Disapproves governmental subsidy to competitors

THE Railway Business Association at its annual meeting at the Hotel Commodore, New York, on November 19 passed resolutions urging the railroads to co-operate to control the trends of rates and revenues in the same manner that they join together to control the distribution of cars. An appeal was made to the Interstate Commerce Commission to abstain from making rate reductions, while leaving the task of initiating compensatory advance to the railroads. Piecemeal "tinkering" with the Transportation Act was likewise opposed and it was urged that no general revision of the act would be complete which did not provide for the co-ordination of all forms of transportation, giving the railroads the predominant share of all joint service. Government ownership of all forms of business was denounced, and opponents of this development were asked to make common cause to resist any movement in this direction. Regulation and more adequate taxation of highway motor vehicles was favored and the government's policy of inland waterway development and operation was condemned.

At the annual dinner of the association there were addresses as follows: Address of Welcome, by Joseph V. McKee, aldermanic president of New York; What Railroads and Business Should Expect from Each Other, by Elisha Lee, vice-president, Pennsylvania; The Five-Year Outlook—a Challenge to Business Leadership, by Dr. Virgil Jordan, economist for the Business Week; and Fishing for a Waterways Yardstick, by Samuel B. Botsford, executive vice-president, Buffalo Chamber of Commerce. Abstracts of several of these addresses will appear in later issues of the *Railway Age*.

Alba B. Johnson was re-elected president of the association. Secretary Frank W. Noxon and Treasurer P. Harvey Middleton were likewise re-elected. Three new vice-presidents were elected, as follows: George P. Baldwin, New York; G. E. Scott, Chicago; J. B. Strong, New York. The following vice-presidents were continued in office: F. N. Bard, Charles J. Graham, J. W. Bettendorf, and Dwight P. Robinson.

Reports presented to the association during the course of its meeting included one on Standards in Purchasing Policy, by Frank W. Noxon, secretary of the association, and one on Railway Manufacturing, by Harry C. Oviatt, vice-president, Manganese Track Society.

The report of the general executive committee of the association and the resolutions adopted follow:

General Executive Committee Report

A year ago our association expressed the opinion that "The business world is over-confident of the railways' financial future, and unconvinced that system is imperative if observation of revenue is to reveal at all times the situation as to railway preparedness." To stimulate interest, we issued an appeal to railways, shippers and regulators for "A Holiday from Railway Revenue Reductions." As reported in a later leaflet, "Shall We Retain Railway Superservice?" the majority of writers among the number replying, for us unprece-

dented, "were not ready to declare for such a holiday, to admit anxiety about the continuance of superservice or to discuss any phase of railway revenue except each his own rate controversy." Our activity called forth enthusiastic approval from a large and representative list of railway executives, many of whose letters were printed in the pamphlet "Railway Purchasing Power." Among the shippers manifesting an interest a number are men whose influence is always important. As a result of much correspondence and conversation it appears that the solution lies with the railways themselves acting through joint agencies manned by traffic specialists, with shippers co-operating. Our staff is at work upon a description of mechanism already functioning which we believe is headed in the direction desired. Your committee transmits to the membership and recommends for adoption in annual meeting a resolution in line with the foregoing.

What we deem a relatively minor incident in federal regulation, the O'Fallon decision by the Supreme Court, precipitated agitation for revision of the adequate-income and valuation provisions of the Transportation Act. In "Do Your Constituents Want Government Ownership?" we published disapproval of the measure. We see no reason to think general revision of the Act urgently necessary or opinion crystallized as to the scope and character of desirable legislation. A resolution to that effect is recommended. We approve, however, a reiteration of our appeal for protection of the Interstate Commerce Commission from political pressure, with a tribute to Mr. Hoover for setting a good example in that respect as President, and of our declaration favoring an increase in the salaries of Interstate Commerce Commissioners.

The railways' difficulties are complicated by highway and waterway competition. A speaker on waterways, Samuel B. Botsford, executive vice-president, Buffalo Chamber of Commerce, is on the dinner program. Resolutions are recommended advocating regulation of trucks and buses and closer scrutiny of waterway projects. We consider that to favor abandonment of the federal barge lines, preferably as a whole or, pending that, by sections, is a timely assertion of our opposition to government ownership and operation in any field.

The membership is advised to urge continuance on 1930 business of the one per cent reduction in income taxes which was effective on 1929 business but expires automatically unless renewed by Congress.

Our conference committee has chosen this year for special study "Standards in Purchasing Policy." The papers in the forum at the business session of the annual meeting will be an address on "Manufacturing in Railway Shops" by Harry C. Oviatt, vice-president, Manganese Track Society, and a staff survey of purchasing standards in general to be read by the secretary of the association.

The business depression has this year continued to deplete our cash reserves. Although total expenses were curtailed by \$1,300 in the previous year and by \$1,300 more this year, the decline in revenue from dues so far exceeded this saving that as of Oct. 31 the cash on hand

a year earlier, \$9,211.97, had dropped to \$334.96 exclusive of the proceeds of securities sold. A striking feature is that though there were in the 12 months 57 resignations, through the loyalty and energy of a large squad of members we actually enrolled in such a year as this 40 members, making the net loss only 17 and leaving in good standing October 31, 1930, a net total of 468. Securities which originally cost \$1,687.50, sold to assure a working bank balance, yielded \$1,752.39, a profit of \$64.89. At current quotations, the investment which we retain has been substantially above what was paid for the securities several years ago, but the treasurer continues to list them at cost, \$18,412.50.

Resolutions

I

Our Railways in the Crisis

Under their pledge to President Hoover our railways will have expended for capital account in the nine months ended Sept. 30, 698 millions, an increase of 21.8% over the corresponding period a year earlier. Such overflowing good faith on the part of an element itself one of the most grievous sufferers has served as an important factor in relieving the national hardship. When drought aggravated industrial and trade depression the railways promptly responded with emergency rate reductions. Superservice has been continued in spite of drastic declines in traffic and earnings. We congratulate the railroads. They have met the crisis ably, loyally, and generously.

II

Railway Revenue

While industry and commerce are preparing their plant and methods for low-cost operation and quality service in the coming contest for home and export markets, our railway system, a primary implement of those occupations, is cramped in that respect by its inability to accumulate reserves in fat years as did other corporations. Railways are straining now not to expand carrying capacity for the future but to preserve immediate solvency. A substantial upswing in freight traffic might strain their facilities, yet the recent moderate resort to credit has illuminated the weakness of their resources and net earnings. The quest for a correction of this perennially recurring national misfortune is everybody's affair. Responsibility must be more clearly fixed. Competition among themselves complicates the duty of the railways to labor together for foresight in rate development. To control car distribution they have a joint agency. Control of rate and revenue trends should be sought in a similar way. Progress, proposed and promoted by organized shippers, has been made through the regional trunk line associations and classification committees. These are the points of constant contact between railways and shippers; the points of original jurisdiction in rate adjustment. These rate committees and the representative specialists who appear before them should be left in no doubt that they will have support from business, railroads and the general public in guarding continuously and vigilantly the railways' financial basis for future superservice. The Interstate Commerce Commission in the application of its rate policies often deals with situations where it is not the aim to depress total revenue. We urge the Commission in such procedure to abandon the practice of ordering reductions and then afflicting the railways with the dilemma of initiating compensatory advances, rendered difficult by competition, or absorbing a loss of income which they cannot afford.

III

The Transportation Act

We oppose piece-meal tinkering with the essentials of the Transportation Act in advance of a well-formed public opinion on the whole railway problem. The Howell bill now pending before the Senate Committee on Interstate Commerce is hardly more than a stump-speech against freight-rate advances apprehended by some who imagine that valuation of railway property bears any real relation to commercial transportation. On the phases with which it purports to deal the measure embodies proposals that have only begun to receive the protracted discussion due changes so far-reaching. Other aspects are vital to a well-rounded solution.

The organization and scope of the Interstate Commerce Commission obviously require a thorough over-hauling. No revision of the Act would be safe or sound which postponed co-ordination of the several forms of transport on terms designed to preserve first of all the ability of the largest and most indispensable agency, the railroads, to give, as they must, the predominant share of the joint service. We suggest to committees of Congress that instead of inquiring opinions on any draft dealing with railway preparedness and the conditions essential thereto they invite expressions from representative specialists as to whether railway legislation is an imperative adjunct to the return of prosperity and if so what legislation.

IV

The Interstate Commerce Commission

We renew our appeal for protection of the Interstate Commerce Commission from political pressure in railway rate regulation. With great satisfaction we have welcomed the course pursued as President in that regard by Herbert Hoover, who has respected the independence of the Commission with the same deference as if it were the Supreme Court. This example is commended to all federal officers. Members of the Cabinet, who are a part of the appointing authority, members of Congress, who define the powers and duties of the Commission and fix Commissioners' tenure and salaries, and especially Senators, who confirm nominations, should steadfastly abstain from attempts to influence the action of the Commission in the exercise of judgment delegated to it by statute. In confirmation proceedings Senators should refrain from questions disclosing the course which they desire nominees to pursue in office if confirmed. Service upon the Commission should be made more attractive to desirable men by increasing the salary. For men of the required calibre \$12,000 is obsolete.

V

Government Ownership

Business men should unite to resist the clamor for government ownership of railways, power plants and other utilities. Nationwide, candidates for office pressing such proposals have been elected, in part by votes of business men who personally approve keeping the United States on the basis of individual initiative. Business men's real views should be conveyed unmistakably to all party leaders, office holders and candidates. Condemnation should greet every measure involving federal investment in railway securities or property. We favor immediate sale of the federal barge lines. Pending such action, if only to prove good faith in national repudiation of government in business, Congress should authorize abandonment of federal barge service on any river section where private lines have developed to the point of shrinkage in federal barge traffic. Business groups specially interested in railways should be ready to reciprocate with other groups in resisting socialism. The Railway Business Association opposes the Senate measure pending in conference in the present Congress for federal operation of the Muscles Shoals plants and all other federal, state and city invasion of electric power and other utility business. Pioneering problems and evils in that field should be dealt with by the public not through floundering endeavors at management but through progressive regulation.

VI

Regulation of Trucks and Buses

Subjection of railways to truck and bus competition while regulating rail traffic but not highway traffic is short-sighted. The effect is to inflate a form of transport which cannot replace railways as our chief reliance and if not regulated gives no guarantee of dependability. Such privateering weakens the railways, which are a certain necessity. Interstate common carriers by highway should have federal regulation. Pending a solution of the obstacles to control of truck transport, a beginning should be made with buses. We regret that the bus regulation measure passed by the House, upon which the railway and highway interests had agreed, is obstructed by amendments in the bill which the Senate Committee has reported out. Exclusion of railways from owning and operating automobile lines should be stricken out. If we narrow the field in which railways are permitted to seek earnings we increase their operating cost per traffic unit. The result will be higher rates or impaired service on the remaining rail traffic. For the same reason we favor restoring to the railways the right to operate boats. The contrary provision in the barge act of 1928 should be repealed. Wherever the railways are willing to

(Continued on page 1096)

Railroad Commissioners Meet at Charleston, S. C.

*Loss of railway traffic to competing agencies among subjects
discussed at convention*

SERIOUS concern as to the ability of the railroads to maintain adequate and efficient service in the face of the loss of traffic to other agencies was voiced at the convention of the National Association of Railroad and Utilities Commissioners held at Charleston, S. C., on November 11 to 15. The effect of progressive losses of revenues in the face of the current curtailment of business was ably brought out by President Charles Webster, member of the Iowa commission, in his address at the opening session.

"One of the greatest problems the regulatory bodies have before them at the present time," he said, "is the safe, sane and impartial, I might say, guardianship of the railroads. We cannot but view with apprehension the decline in freight and passenger earnings of the carriers and their effort to recoup these losses by increases in rates and retrenchment in expenditures by the closing of shops, of small stations, the withdrawal of train service, all of which means the discharge of thousands of men who have given their life work to railroading. This not only effects the employees directly, but the public as a whole. The carriers are in a much different position now than a few years ago, as they have strong competition in the trucks and buses and any attempt to increase rates on short hauls especially will throw most of that class of business to their competitors as soon as the highways are made permanent.

"It would be a real catastrophe to lose the splendid service the carriers are giving, as never in history have we had such satisfactory service. Where formerly it took from four to six weeks to move a car of lumber from the Coast to the Middle West, now that car is moved in ten days or two weeks. Where formerly livestock remained in stock yards for weeks awaiting cars, now they are obtainable on demand. Any business man appreciates the great saving of this class of service. The problem is to guard them from their own mistakes, from fanatics and protect the public as well.

"The retrenchment program will undoubtedly result in the abandonment of many branch lines, depriving the communities, not only of railroad service, but of the heavy taxes the roads are paying. These are serious matters that should be given thoughtful consideration.

"What the railroads need is increase in volume of business and this cannot be secured by advancing rates. Another feature of the railroad problem, is the natural gas situation. This gas is now being produced in large quantities and in addition to oil is being carried by pipe lines to a large number of cities. It is being wholesaled at such a low price that it will take the place, in a measure, of coal for heating and other purposes. This will deprive the railroads of the revenue for hauling coal."

Highway Competition

Highway traffic and its relation to railway traffic had an important place on the program. It was discussed in a paper by L. R. Powell, Jr., president of the Seaboard Air Line, who contended that the railways cannot suc-

cessfully compete with the bus and the truck so long as the two agencies of transportation are not subjected to the same conditions as to regulation, taxation and governmental assistance. An abstract of his paper appears on a following page. Statistics giving a measure of the loss of traffic suffered by the railways to the highway vehicle were offered in a report submitted by Amos A. Betts, of the Arizona Commission, as chairman of the Committee on Motor Vehicle Transportation. However, it remained for Joseph H. Hayes, general counsel of the Iowa Truckers Association, to throw light on motor truck competition from an entirely different angle. As pointed out in an abstract of his remarks appearing elsewhere, only about seven per cent of all trucks are employed as common carriers and therefore subject to regulation. In his opinion, this proportion will not be seriously altered with further growth in the use of trucks.

Again Urge Federal Regulation of Highway Transport

While the Special Committee on Motor Vehicle Legislation was again compelled to report failure of efforts to secure the enactment of a federal act providing for the regulation of highway interstate transport, its report indicated no feeling of discouragement. It reviewed the circumstances attending the passage of the revised Parker-Couzens bill in the House, with amendments designed to remove features objectionable to the association, and the unsuccessful efforts to secure its passage by the Senate before the close of the session. Final enactment of this legislation, in the opinion of the committee, may reasonably be expected in the short session of Congress. Endorsement of the committee's attitude with respect to the bill and the efforts made to secure its passage, was given by the association through the adoption of an appropriate resolution.

A form of Uniform Motor Carrier Act was submitted by Philip H. Porter, of the Wisconsin commission, on behalf of the Committee on Uniform Regulatory Laws and was received for publication without comment.

Convention Was Well Attended

The convention was attended by 73 members and other officers of 38 state commissions and 4 members of the Interstate Commerce Commission, namely, Chairman Frank McManamy and members E. I. Lewis, William E. Lee and Claude R. Porter. In addition, there were representatives of various public utility companies and others bringing the total registration to nearly 250. The program was distributed over seven sessions, of which the last was confined to closing ceremonies at the state office building following an all-day motor coach trip to Lake Murray and Columbia, S. C., the capital city. In addition to the presentation of committee reports and the reading of the two papers previously mentioned, the program included addresses by a number of others, among whom were Ellison D. Smith, U. S. senator from South Carolina and

the attending members of the Interstate Commerce Commission.

In a brief statement, Chairman McManamy, who appeared on the program also as the chairman of the Committee on Grade Crossings, devoted his remarks to a subject of primary interest to the state commissioners, namely that of further encroachment by the federal body on the prerogatives of the state commissions. "With the duty of regulating corporations having a book value of 52 billion dollars and gross earnings of 12 billion dollars and employing 3¼ million persons," he said, "there is glory enough for all of us. The I. C. C. is seeking no increase in work." Commenting on the investigations pursuant of the Hoch-Smith resolution, he expressed the opinion that they would result in a vast improvement in the rate structure, a more equitable distribution of the burden and a better construction of tariffs.

Commissioner Lewis also touched on the relation between the federal and state commissions, assuring the state organizations of the desire of the I. C. C. to obtain their continued co-operation. Touching on the present depression, he offered the opinion that world-wide readjustment would lead to closer margins of profit and keener competition with a resultant increase in litigation and a period of exhausting work for regulatory bodies.

Election of Officers

In the election of officers Harvey H. Hannah, chairman of the Tennessee commission, was advanced from first vice-president to president, and John J. Murphy, chairman of the South Dakota commission was moved up from second vice-president to first vice-president, while Hugh H. Williams of the New Mexico commission was elected second vice-president. James B. Walker, John E. Benton and Clyde S. Bailey, were re-elected, respectively, to the offices of secretary, general solicitor, and assistant secretary and assistant general solicitor. Richmond, Va., was selected as the place of the next convention.

The program was again a crowded one although several committees did not report, among them, the Committee on Railroad Rates, the Committee on Railroad Service, Accommodations and Claims, and the Special Committee on I. C. C. Classification of Accounts. However, because of the number of invited speakers, only a limited amount of time could be allotted to the presentation of committee reports and still less for their discussion. With the evident desire to correct this feature of convention arrangements, a resolution was adopted at the closing session suggesting that no outside speakers be permitted on the program during the first 2½ days of future conventions.

Take Action on Howell Bill

The Committee on Valuation, of which Chairman Fred P. Woodruff of the Iowa commission is chairman, presented the customary report of the current status of federal valuation of the railways in which brief reference was made to the valuation provisions of the Howell bill introduced in the last session of Congress. This bill was also subjected to close analysis in a detailed memorandum prepared by General Solicitor Benson and Assistant General Solicitor Bailey and which formed the basis for a resolution that was adopted by the convention. The resolution follows:

Whereas, this association by resolutions adopted in its annual convention held in 1921, and in five annual conventions since that year, has condemned the rate-making provisions of Section 15a of the Interstate Commerce act as un-economic and unsound, and,

Whereas, the imposition of rates which will enable some carriers "to receive a net railway operating income substantially and unreasonably in excess of a fair return upon the value of their railway property" is not justified by the fact that some other carriers may earn less than a fair return, and,

Whereas, the taking away from carriers which are thus permitted to exact income "substantially and unreasonably in excess of a fair return" of a portion of that return, as is now attempted by the recapture provisions of Section 15a, is not of benefit either to shippers or to those railroads which fail to earn a fair return.

Be it resolved, That this association reaffirms its attitude heretofore expressed respecting said Section 15a;

That this association is opposed to the recapture provisions of the Howell Bill;

That this association recognizes that the provisions of paragraph (f) of Section 19a, which directs the Interstate Commerce Commission "from time to time" to make revaluation of all the railway properties of the United States "in like manner" as such properties were originally valued under Section 19a, are impracticable, and that it is impossible to make any revaluation within such period of time as to accomplish the original purpose of said paragraph (f), and,

That it is the opinion of this association that such changes in the law should be made as may be necessary to relieve the Interstate Commerce Commission from the duty to revalue the property of carriers subject to the Interstate Commerce Act "from time to time" and "in like manner" as such property is required to be valued either under said paragraph (f) of said Section 19a or under Subparagraph (b) of paragraph (6) of Section 5 of the Interstate Commerce act, but without in any way diminishing the power of the Interstate Commerce Commission to keep informed as to the capital investment of the carriers and as to changes in the property of carriers, by requiring reports to be made by carriers which shall show such changes, and the cost thereof, and by inspection of carrier properties, accounts, and records.

Additional Reports and Resolutions

Another resolution asks Congress to amend the Transportation Act in such fashion that an electric railway common carrier may be able to determine whether it is subject to state or federal jurisdiction and so that state authorities may know to what extent they have power and duty to enforce laws in their respective states.

Solicitor Benton also reviewed the efforts made on behalf of the association in opposition to the Couzens power and communication bills, definite action being taken by the adoption of the following resolution reiterating the association's confirmed opposition to any increase in federal authority:

Resolved, That this association is unalterably opposed to any form of federal legislation which proposes enlargement of federal authority by the creation of new agencies, whereby the regulatory authority of the state commissions would be interfered with in fields in which they are now adequately functioning.

As in past years active interest was taken in the report of the Committee on Co-operation Between Federal and State Commissions, since it embraces a subject that vitally affects the prerogatives of the state commissions. The report, which was signed by Paul A. Walker, special counsel of the Oklahoma commission, as chairman, reviewed the progress made in co-operation during the past year in an effort to throw more light on the exact status of the state representatives in such proceedings and offered the conclusion that "It seems inadvisable to recommend further substantial changes in the form or mode of procedure."

The Special Committee on Air Transportation Regulation submitted a progress report in which it reviewed the Milwaukee Air Parley called at the instance of Governor Walter J. Kohler of Wisconsin and the first National Air Conference held at Chicago on August 18-20. The committee concluded its report with the suggestion that the association appoint a standing committee on air transportation and regulation and urged further effort toward

the development of uniform regulatory practices in the several states.

Consolidation Opposed

Definite opposition to the entire project for the consolidation of the railways was voiced in the report of the Special Committee on Consolidation of Railroads which was replete with arguments against it and concluded with the recommendation that the committee be authorized to formulate a bill providing for the repeal of the consolidation provisions of the Transportation Act. An abstract of the report, which was signed by J. W. McCardle, chairman of the Public Service Commission of Indiana, follows:

When consolidation is proposed, the first question which naturally arises is: "What benefits are to be derived from compulsory consolidation?" To be sure, the financiers who handle such matters are usually able to reap some benefits when a consolidation takes place. It is the public, however, whose interest should be considered. The only benefits which the public can expect are reduced transportation costs and improved transportation service. Unfortunately, in the case of consolidations which have already taken place, the public has received little, if any, of these benefits.

One of the unfortunate effects of a consolidation is to remove the man charged with the operations of the railroad farther away from immediate contact with its patrons, and because of this condition the maintenance of cordial relations becomes increasingly difficult. Shippers and patrons of the railroad are forced to discuss their problems and difficulties with subordinates, who relay the information to their superior, who alone has the authority to make decisions.

The direct economic effects of consolidation are extremely important. When a number of carriers are consolidated it means the removing of shops from one location to another and the extending of terminal divisions. This involves the reduction of forces necessary to handle the business, and the application of the seniority rule means that many men will be thrown upon their own resources. The employees of the railroads themselves constitute no inconsiderable portion of our population, and their welfare must be taken into consideration when the public good is in question. When division headquarters are moved it means that the railroad employee, who has saved little by little enough to purchase his home, must either sacrifice the result of his labor or must discontinue his employment with the railroad.

The effect of removal of divisions headquarters is not, however, confined alone to the employees who must sacrifice their homes and move away, but a greater if more indirect effect is felt by the community which loses one of the best elements of its population.

A Specific Case

To refer again to the consolidation of the Great Northern and Northern Pacific, it is to be observed that the commissioner's report shows some \$10,000,000.00 estimated annual saving by such consolidation, this amount being made up from various different items. A study of these items shows that traffic will be re-routed, passenger trains diverted and railroad facilities unified in many cities. In addition to that it is shown that shops will be rearranged, division points relocated and forces reduced by this consolidation. If these items of anticipated savings are examined, and at the same time the losses which will accrue to the employees and to the various communities from which shops and division headquarters are removed, and the effect in reduced revenues from these communities upon the railroads themselves are borne in mind, a doubt will arise as to whether there is any real saving.

A further consideration should be weighed. It is a well known fact that many communities and cities have contributed largely to induce the location of the rights-of-way and the shops of the carriers. These concessions and inducements amount to an equity in the property of the railroads which they have attracted. From the consolidations thus far permitted it appears that, while the donors of such inducements had gained very little, if any, they are certain to suffer very considerable loss.

It is a well known maxim that competition is the life of trade. Service is kept at a high standard by competing carriers bidding for the business. When systems are consolidated into three or four trunk lines, as is contemplated for the eastern division of the United States, it will mean that,

where shippers in the interior territory now have available numerous routes for their shipments, these will be withdrawn and in many instances the shipper will have one route over which to forward his traffic.

Transportation Act Should Be Amended

The Transportation Act undertook to create better conditions for the railroads to enable them to get back to normal. The idea of such consolidation grew out of the fact that at that time there were many weak railroad systems without sufficient credit to enable them to finance improvements and expenses, and to maintain themselves in competition with other railroads.

As a matter of fact there was no public demand for such consolidation and since the Interstate Commerce Commission subsequently, by means of rate increases and adjustments, has enabled the carriers to rehabilitate themselves, there is at this time not only no public demand for consolidation but there is a well defined sentiment in opposition. The purpose which moved the Congress to adopt the provision for consolidating the railroads into a few large systems is no longer a valid one, since the needs which existed when the act was passed are no longer evident. Because of the tremendous mergers and consolidations which have taken place in other fields of endeavor, the results of which have not proved universally beneficial, a feeling of mistrust has been created, which causes the general public to doubt the wisdom of gathering the resources of our country into relatively few groups. Regulation has unfortunately not been able to take the place of competition in all cases, and it seems apparent that the public does not generally desire to push further than it has already gone the doctrine of regulated monopoly.

It would be our recommendation that this committee formulate an act to be presented to the next session of Congress, repealing the provisions of the Transportation Act requiring the Interstate Commerce Commission to formulate a plan for consolidating the railroads into a limited number of systems, and providing for reasonable voluntary consolidations of carriers through natural processes when such proposed consolidations are approved by the different states through which such carriers operate and when they are found by the Interstate Commerce Commission to be clearly in the public interest.

McManamy Reports on Grade Crossings

The Committee on Railroad Grade Crossings, Elimination and Protection, of which Frank McManamy, chairman of the Interstate Commerce Commission, is chairman, presented a progress report on the subject assigned which consisted in large part of statistical matter, largely segregated by states, on the mileage of highways and railways, number of grade crossings, progress in elimination programs and highway crossing accidents. An abstract of the report follows:

The steadily increasing number of accidents and mounting casualty rate at highway grade crossings present a problem which yearly assumes such appallingly greater proportions that active consideration must be given to this vital question by the public through the state commissions having jurisdiction over such matters.

That certain of the states during the past year have taken cognizance of the seriousness of the situation is evidenced by the fact that, as recommended in the previous report of this committee, seven states have made surveys looking toward the establishment of definite programs for the elimination and protection of highway grade crossings.

Accident Records and Crossing Statistics

A study of reports of accidents submitted to the Interstate Commerce Commission by the railroads for the five-year period 1925 to 1929, inclusive, shown in Table No. 5, Appendix A, indicates the continued increase in number of accidents and number of casualties occurring at highway grade crossings. Comparing the annual figures for 1929 with 1925 it will be noted that during 1929 there were 496 more accidents, 279 more killed and 249 more injured than in 1925.

From the standpoint of the railroads the highway grade crossing presents a constant menace. During the year 1929 there were 53 derailments of trains on steam railroads, resulting from collisions with vehicles at highway grade crossings. Two employees were killed and 10 injured and 10

railroad passengers were injured in these derailments, and all told 23 railway employees on duty were killed and 106 injured in highway grade-crossing accidents during 1929.

Reports of the Bureau of Public Roads, Department of Agriculture, show that 19,954,347 automobiles were registered in 1925, while in 1929 the number of cars registered totaled 26,501,443—an increase of 6,547,096.

A tabulation of highway grade crossing accidents for the ten-year period 1920 to 1929, inclusive, is given below, a separation being made so as to show a comparison between casualties to pedestrians and to occupants of automobiles.

Year	CASUALTIES AT HIGHWAY GRADE CROSSINGS			
	Pedestrians		Occupants of automobiles	
	Killed	Injured	Killed	Injured
1920	365	322	1,273	3,977
1921	306	258	1,262	4,025
1922	274	272	1,359	4,493
1923	366	308	1,759	5,416
1924	323	258	1,688	5,650
1925	299	273	1,784	5,916
1926	300	261	2,062	6,358
1927	304	235	1,974	6,068
1928	303	209	2,165	6,218
1929	317	234	2,085	6,347

The increase in automobile registration has been accompanied by a widespread extension of highways to meet the demand for access to districts heretofore inaccessible by automobile, and also the construction of new highways to obtain more direct routes of travel. Despite efforts of engineers and regardless of the expenditures of vast sums by the public and by the railroads for grade separations and highway relocations, the result has been a constantly increasing number of highway grade crossings. The following statement shows in detail for the years 1926 to 1928, inclusive, the number of new crossings added each year, the number eliminated, and the net increase:

	1926	1927	1928	1929
Number of new crossings added.....	1,876	1,909	2,068	1,945
Number of existing crossings eliminated	1,254	1,391	1,204	1,397
Number eliminated by separation of grades (included in the last figure above)	195	245	270	321
Net increase during year.....	622	518	864	548

Lack of Uniformity and Co-ordination

A considerable number of organizations and agencies are devoting attention to some of the problems involved in the grade-crossing question. Among these are the American Railway Association, American Railway Engineering Association, American Electric Railway Association, American Standards Association, the National Association of Railroad and Utilities Commissioners, the National Conference on Street and Highway Safety, the American Association of State Highway Officials, the United States Chamber of Commerce, the United States Bureau of Public Roads, automobile associations, state commissions, highway departments, county and municipal authorities, and other organizations interested in the traffic, technical and safety problems.

These bodies are working more or less independently of

each other, and lack of co-ordination of effort has introduced complications and retarded progress. In some states authority over the grade crossings is vested partially in the state utility commission and partly in the state highway commission, with perhaps a question as to authority and responsibility in the cities and towns. This divided authority is an element of weakness which cannot fail to interfere with the provision of proper protection where and when required.

An example of the lack of uniformity in requirements and practice is shown by replies to a questionnaire submitted to the state commissions by the secretary of this association with respect to the color of advance warning signs. Of the 35 states from which replies were received eight have adopted a white background with black letters, in accordance with recommendations of this association, 16 use a yellow background with black letters, in accordance with the recommendations of the American Association of State Highway Officials, and 11 states require no special colors, while in one state black and white as well as black and yellow signs are used, the white background under authority of the public service commission and the yellow by order of the state highway commission. This committee believes that the question of color background is not of paramount importance, although the necessity for uniformity in the design, coloring, and method of installation of all signs and signals and in the indications displayed by such crossing protective devices cannot be too strongly stressed. As was stated in our report last year, the danger at all grade crossings is the same, and the warning given by the devices designed to protect against this danger should be identical in all of its characteristics wherever encountered. There may be wide variance in the apparatus utilized for displaying the indications but the aspect as registered in the mind of the traveler on the highway should at all times and in all places produce the same conscious or subconscious response or reaction.

During the present year the American Railway Association has organized a Joint Committee on Grade Crossing Protection, consisting of representatives of the Operating division, Safety section, Construction and Maintenance section, and Signal section. The third National Conference on Street and Highway Safety which was held in Washington during the latter part of May, 1930, considered at length the subject of grade crossing elimination and protection.

Summary

The first essential step in any effective grade crossing program is to definitely assign authority and establish responsibility for results. Once authority and responsibility have been established, the one thing that stands in the way of greater progress in grade crossing elimination is the difficulty of providing the large sums of money required for these projects. In New York substantial progress is being made by means of money raised by a bond issue, funds from which are immediately available for the entire project, being advanced as required to both the railroads and the local governments to be repaid in annual installments extending over a

Grade Crossings of Class I Steam Railways

At beginning and end of year, classified according to protection

	1925		1926		1927		1928		1929	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31
Protected Crossings:										
Gates, with or without other protection, operated 24 hours per day...	3,224	3,395	3,400	3,347	3,375	3,286	3,282	3,232	3,246	3,168
Gates, with or without other protection, operated less than 24 hours per day	3,192	2,925	2,986	2,823	2,913	2,671	2,683	2,475	2,477	2,288
Watchmen, alone or with protection other than gates, on duty 24 hours per day	1,274	1,272	1,263	1,303	1,272	1,287	1,301	1,303	1,305	1,258
Watchmen, alone or with protection other than gates, on duty less than 24 hours per day.....	6,816	6,635	6,672	6,462	6,487	6,267	6,250	5,994	6,003	5,779
Both audible and visible signals, without other protection	5,234	5,742	5,619	6,459	6,447	7,376	7,359	8,004	8,029	8,815
Audible signals only	5,991	5,668	5,732	5,327	5,356	4,900	4,865	4,572	4,556	4,244
Visible signals only	1,260	1,604	1,613	2,206	2,200	2,937	2,980	3,635	3,721	4,638
Total protected	26,991	27,241	27,285	27,927	27,950	28,724	28,720	29,215	29,337	30,190
Unprotected Crossings:										
Special fixed signs or barriers, with or without standard fixed signs...	20,521	24,259	26,247	29,366	31,244	31,845	32,019	34,508	34,928	36,275
Standard fixed signs only.....	185,198	182,133	176,101	173,254	172,446	171,972	173,168	171,425	172,124	171,879
Otherwise unprotected .....	.....	.....	4,068	4,611	3,691	3,742	4,485	4,941	4,952	4,465
Total unprotected	205,719	206,392	206,416	207,231	207,381	207,559	209,672	210,874	212,004	212,619
Grand Total	232,710	233,633	233,701	235,158	235,331	236,283	238,392	240,089	241,341	242,809
Crossings not previously reported...	No record			835		434		833		920
Actual net increase	No record			622		518		864		548
Eliminated by separation of grades..	No record			195		245		270		321

Note: The figures shown for each year include approximately 875 crossings reported by Class I roads covering their lines in Canada.

number of years. In some states a portion of the money collected in the form of gasoline taxes is definitely allotted to grade crossing separation projects.

The present grade crossing problem has developed as a result of changes in our method of living during the past two decades from which the public has vastly benefited, and it may well be that society at large should assume a larger share

Accident Statistics (I. C. C.)

Highway Grade Crossing Accidents					
	1925	1926	1927	1928	1929
Total number of accidents	5,479	5,890	5,640	5,800	5,975
Persons killed	2,206	2,491	2,371	2,568	2,485
Persons injured	6,555	6,991	6,613	6,666	6,804
Accidents in which automobiles were involved:					
Number	4,576	4,970	4,857	5,046	5,191
Persons killed	1,784	2,062	1,974	2,165	2,085
Persons injured	5,916	6,358	6,068	6,218	6,347
Derailments of trains resulting from collisions between trains and automobiles:					
Number	30	26	32	50	53
Persons killed	15	11	6	22	23
Persons injured	30	54	64	47	53
Number of automobiles:					
Registered *	19,954,347	22,001,393	23,127,315	24,493,124	26,501,443
Number of grade crossings of Class I steam railways at end of each year	232,755	234,280	235,446	239,213	241,932

* Figures furnished by Bureau of Public Roads, Department of Agriculture.

of responsibility for the solution of the problem and for providing necessary funds the benefits from which would accrue largely to the users of the highways. Serious consideration should be given by the several states to this question and whether definite and increased allotments of funds for this purpose cannot be made from general taxes, gasoline or other special taxes, or bond issues.

The grade crossing problem is nation-wide, and the casualty record is sufficiently grave to warrant greater consideration throughout the country and to justify the expenditure of increased amounts of public funds to safeguard the traffic on our highways.

Obstacles to the Regulation of Motor Truck Transport

In a paper by Joseph H. Hays, counsel of the Iowa Truckers Association, covering the regulation of motor truck common carriers by the State of Iowa, attention was directed to characteristics of truck ownership and use which indicate well defined limitations on the possibilities of regulation. An abstract of a part of his paper follows:

Those who operate motor trucks, by the manner in which they use them, fall, naturally into four separate classes. They are (1) The regular route common carrier, the operator who holds himself out to haul for the public for hire over a regular route or between fixed termini, usually operating on a schedule at published and standard rates. (2) The irregular route, or "anywhere for hire" operator, who holds himself out to the public to haul for hire to any place at any time. (3) The contract carrier, one who contracts with one or only a few shippers, who hauls for hire on regular or irregular routes, but does not hold himself out to serve the public. And (4) The owner operator or private carrier, one who uses his own trucks only for the transportation of his own property.

The first two of these classes, combined, are known to be much smaller in number than the last two. Estimates based on traffic surveys made by the United States Bureau of Public Roads in 1927 indicate that, of all of the motor trucks in use, about 82 per cent of them fall in the last class, the owner operator; about 11 per cent of them fall in the third, or contract carrier class; and only about 7 per cent are common carriers of either the first or second classes. This figure is only an estimate, however, as there is no means in existence of definitely determining the manner of use of all motor trucks registered. The National Automobile Chamber of Commerce estimates that about 3,500,000 trucks in the United States

are operated by about 2,500,000 persons so it may be observed that the great majority of truckmen are small operators using only one or two units.

The first two classes, regular route and irregular route carriers, are common carriers and are subject to government regulation, while the last two classes by the decision of the U. S. Supreme Court in the Frost Case are not common carriers, cannot be made so, and are not subject to regulation, in the sense in which we are considering regulation.

Class 1—the regular route operator—in my opinion will always be the smallest class. The shipper who utilizes this type of service is the one who has a small quantity to move in each shipment where the usual volume is less than a truck load lot and would not warrant the investment of the shipper in his own truck equipment. Class 2—the irregular route operator—may expect to receive the business of the shipper who has one or more full truck loads to move in each shipment but who is only an occasional shipper, one whose volume, although large for each shipment, is not sufficiently constant to warrant the investment in his own equipment. The third and fourth classes may be considered together in that they draw the business of the shipper who has a sufficient volume and sufficient constancy of volume to warrant the investment in equipment necessary to furnish the service, convenience, and flexibility afforded by truck transportation.

As the volume of business of each shipper to a given point increases there is an increasing tendency for his freight to move from class one or two to either class three or four, that is, from the common carrier to the contract or private carrier.

No form of regulation can be designed, in the public interest, which will keep a private citizen from purchasing and operating his own trucks to transport his own freight or from contracting with another private citizen to haul his freight for him alone and not for the public. No form of regulation can be designed in the public interest which will prevent the competition of the private carrier with the common carrier nor keep the greater volume of even L. C. L. short-haul freight moving over common carrier trucks.

Highway versus Railway Transportation

By L. R. Powell, Jr.

President, Seaboard Air Line, Norfolk, Va.

[The following is an abstract of a paper presented before the convention on Thursday afternoon.]

With the birth of the motor driven vehicle and the building of our modern roads, there has come into being a use of our highways which was never contemplated by our forefathers and as to which there has been little intelligent progress in respect to legal control and regulation. If nothing more were involved in this situation than the entrance of "A New Chester" into the field of competition with our railroads, we might well leave it to be settled according to the doctrine of "the survival of the fittest." In such a contest, however, it is to be presupposed that the victor can supplant the vanquished, both in efficiency and cost, with every character of service rendered by the latter, and that neither contestant shall be hampered by conditions, rules or restrictions that do not apply to both. Under existing conditions no such contest is possible, nor can the motor vehicle "step into the shoes" of the railroads and serve in its entirety the shipping requirements of the public. Tested by its present state of development and so far as can be seen by its future possibilities, it can do no more than cripple its competitor and create a condition where the latter will be faced with the alternative of either rendering inadequate and unsatisfactory service, or of increasing its charges for that portion of the service which it alone can economically perform.

No Basis for Fair Competition

There have been suggestions that our railroads should meet the challenge of their competitor, both in respect to charges and service. Assuming what I believe to be a fact, that the average man is actuated by a desire to be just, and frowns upon any contest where either of the participants is given an unfair advantage, it may be worth our while to briefly outline a few of the many conditions which would make the acceptance of such a challenge impossible.

The rates charged for transportation by the railroads are fixed by law and their service is regulated by public authority. Their maximum rates have in the first instance been fixed by legal authority at the lowest possible sum that will yield them no more than a fair return or living wage, and they have been left no latitude within which to vary their charges from those thus determined. Their competitor, the motor

vehicle carrier, is largely the master of its own scale of rates. While in many jurisdictions where certificates of public convenience and necessity are required, a scale of rates is filed by them with the regulatory body issuing such certificate, in the main this is merely perfunctory and so far as I am advised, but a few conclusive efforts have been made anywhere looking to the legal establishment of a definite and uniform schedule of charges by motor carriers.

Conditions Imposed on Employees

The operators of our steam trains are required to spend years in training to fit them for the positions of trust and responsibility which they hold, and to submit to most rigid tests, mentally and physically, before they are entrusted with the lives and property of the people. This training and skill entitles them to and they do receive a wage remuneration in excess of that paid the average artisan. Notwithstanding the rigid tests to which they must submit, they are surrounded by innumerable safeguards, provided at the expense of the railroads, to further insure the safety of transportation by rail. Against this we find a competitor employing operators of motor vehicles at a wage scale that sinks into insignificance when compared with that paid by the railroads, and with an experience that as a rule extends no further than the ability to step on a gas accelerator, turn a wheel and toot a horn.

The law fixes the hours of continuous service beyond which a railroad employee engaged in the operation of a train can not remain on duty. No such provision or practice prevails in respect to motorized vehicles employed as common carriers. While this provision of the law is a wise one, it is obvious that this difference in working conditions resulting therefrom adds to the expense of the railroads a cost not incurred by their competitors.

There are very few, if any, branches of railroad service to which the police power of the government in the interest of safety has not reached. Their equipment must meet certain definite legal requirements and undergo from time to time the most rigid inspection. No train, though operated over its private right of way, can be moved unless every car in it is equipped with automatic air brakes. It is required to maintain at innumerable highway crossings gates and watchmen or automatic signals to warn travelers on the highway of the approach of its trains, and where a crossing is especially dangerous, to share with the state, county or municipality the cost of its elimination by providing overhead bridges or underpasses thereat. No such comparable burdens are imposed upon the motor carrier, and few, if any, restrictions in the interest of safety are thrown around its operations. Over our highways heavily loaded motor freight trucks, with one or more trailers attached, are constantly moving. These trailers are without brakes and over them the driver of the truck has no control.

Railways Cannot Choose Traffic

The railroads are *common carriers*. They have no election in respect to what they transport. They must carry what is offered to them regardless of its description, intrinsic value or weight. The motor carrier exercises the right of election and selection as to what it transports and seeks only to carry that which will yield it the highest monetary return, or in common parlance, "the cream of the business."

The railroads are required to provide and maintain in every community of appreciable size, depots and warehouses for the comfort and convenience of their passengers and the protection of freight entrusted to their care. The railroads employ agents and necessary assistants, whose salaries constitute no trivial proportion of their total expenses. No such service, unless it be in a few isolated cases, is provided by or required of the motor carrier vehicle.

I have enumerated some of the minor factors that differentiate the operation of a railroad from that of the motorized vehicular carrier, to show that this great economic question cannot be lightly passed over with the suggestion, "Let the railroads meet the competition of the bus and truck." In order for there to be competition in the true sense of that word, there must be not only equality of opportunity but also a measurable parity in respect to obligations, duties and legal requirements.

"What Shall Be Done?"

Assuming that there can be no successful challenge to the assertion that no method of transportation has been discovered which can supplant our railroads in their entirety; that they must in the public interest remain to perform that service which they alone can economically render, and that in order to do so they must be maintained to the highest degree of efficiency, we are brought face to face with the question,

"What shall be done with the competition which is so seriously threatening their destiny?" My personal opinion is that it can be controlled in no way except through the medium of statutory regulation and taxation. Our federal government, dealing with the problem of competition between railroads, has, in the Transportation act, declared that no new line of railroad can be constructed without the consent and approval of the Interstate Commerce Commission. The purpose of this provision of the law is to prevent needless competition between railroads for business that is not more than sufficient to support one, and to preserve to the communities which it serves at least one strong, virile instrumentality of transportation rather than to permit both to die for want of adequate traffic to support them and neither to be in position to serve the public needs. Why could not this same principle be applied in dealing with motor competition with our railroads, and a policy fixed by law which will prevent such competition where the service that can be required of the railroad will be reasonably adequate or where the traffic is insufficient to support both types of transportation?

Why should the motor carrier vehicle operated for private gain not pay a fair and adequate price for the use of facilities that have been provided out of public monies, and why should not that price have some relationship to the cost and maintenance of these facilities which it uses? And in the imposition of further taxes upon it, why should not our legislative bodies seek to bring about, as far as humanly possible, a parity in this respect between motor carriers and our railroads to the end that on approximately equal ground, with comparatively equal burdens, they may compete for the commerce of the nation?

In a recent article appearing in the Wall Street Journal, F. J. Lisman is quoted as saying: "Owners of buses and trucks have much to say about the taxation of highway carriers. They are complaining bitterly about the high tax on gasoline, etc. It is estimated that they pay about 5 per cent of their gross earnings in taxes which gives them a free right of way."

"The railroads pay about 7 per cent of their gross earnings in taxes and have to spend about 14 per cent of their gross earnings for maintaining their right-of-way, irrespective of paying interest on the cost of it. To put it differently, the railroads pay out in taxes, maintenance and interest on right of way, about 27½ per cent or about 5½ times as much as the lines using the highways."

R.B.A. Meets in New York

(Continued from page 1090)

undertake transportation, by rail, highway, store-door, water or air, we should welcome this and regulate it. As a protection against excessive charges the country is committed to regulation. This is only confused and diluted by attempts to sanctify competition.

VII

Inland Waterways

More attention, in our judgment, should be paid to defining and applying to federal appropriations for inland waterways the limit suggested in President Hoover's phase "economic justification." Army engineers, directors of the budget, Senators and Congressmen have been too much left without competent impartial aid in drawing the line and in resisting indiscriminate pressure for projects. Authorities of the highest standing insist that economic justification is commonly claimed in recommending waterway appropriations is incomplete and misleading. Waterway improvements are paid for out of taxes upon all the citizens. Business men favoring such projects especially in their own regions, should welcome if not initiate the development of a standard by which to defend the expenditure. Further study should be given to the possibility of developing a basis, fair to water and rail carriers, for the regulation of water-borne commerce so far as within the jurisdiction of the United States.

VIII

Income Taxes

Even though to balance the budget the Treasury must slacken speed in the curtailment of the national debt, we favor continuing on the business of 1930 the one per cent income tax reduction which Congress applied to 1929 business only. This is no time to increase tax burdens.

I. C. C. Opens Hearings on Rail-Highway Service

THAT the Interstate Commerce Commission sees a need for effective co-ordination of railway and highway transportation, and that it is desirous of finding out what legal steps are necessary to open the way to such co-ordination, was indicated by Commissioner Ezra Brainerd in a statement made at the beginning of the first hearing, in St. Louis, Mo., on Docket 23,400, Co-ordination of Motor Transportation. The railways, said the commissioner, are the backbone of the transportation system of the country, but other forms of transportation, particularly motor transport, have also assumed positions of importance. The effect of the advent of motor transport has been a general and rapid decline in certain classes of railway passenger and freight traffic.

Some roads are making use of motor vehicles in connection with their rail operations, said the commissioner, and that such use is extensive is indicated by the tabulation which the commission has prepared from the railways' replies to the questionnaire distributed last summer to all carriers subject to the Interstate Commerce Act. The railways have informed the commission, he said, of certain difficulties encountered in co-ordinating railway and motor transport, and the present inquiry has as its purpose the disclosure of legal steps necessary to facilitate the effective co-ordination of the two forms of transportation.

The facts needed, the commissioner continued, are: Economic problems involved; the obstacles, legislative and otherwise, which stand in the way of co-ordination; the results which have been obtained by carriers which have effected co-ordination in one way or another; and any other information based on experience in rail-highway co-ordination.

Participating with Commissioner Brainerd in the examination of witnesses were Examiner Leo J. Flynn, who wrote the report of the commission following its motor transport investigation in 1926, and Examiner Albert E. Stephan.

At the outset of the hearing, Ivan Bowen, counsel for the Pickwick-Greyhound Lines, large motor coach operators in the Southwest, pointed out the present tendency on the part of certain railways toward reduced day coach fares, and asked that the St. Louis-San Francisco, the Texas & Pacific, and the Atchinson, Topeka & Santa Fe be required to put into the record testimony relative to the reduced fares they have in effect, the points between which these fares apply, and the revenues and expenses involved in operation under these reduced rates. His purpose apparently was to bring about a showing that railways, in order to "run the busses off the highways," are incurring greater losses under the reduced rates than they encountered under standard rates. The commission took this request under advisement.

Cotton Belt Testimony

The first railway witness was F. H. Millard, controller and assistant to the president of the St. Louis Southwestern and the Southwestern Transportation Company. He described the Cotton Belt's losses in passenger and l. c. l. freight business in recent years, and stated it as the Cotton Belt's conclusion that railways cannot meet motor competition with their rail facilities alone. He told of the organization of the Southwestern Transportation Company as a subsidiary of

the Cotton Belt, and described its existing operations in detail. As to results, he said that the transportation company's passenger revenues in 1929 more than equalled the decline in passenger revenue suffered by the railway in 1929 as compared with 1928, and that it had enabled the reduction of train service with an annual saving in operating expenses of \$560,000.

Railway ownership of the trucks which it uses makes possible the maximum service, said Mr. Millard, who went on to describe the various ways in which the transportation company is using such vehicles. The railway and its subsidiary have a reciprocal contract, each agreeing to handle freight for the other, at a charge of 50 cents per car mile by the railway and 25 cents per vehicle mile by the transportation company.

The transportation company has confined itself to intrastate operation under this contract, said Mr. Millard. In reply to questions asked by the commissioner, he said he believed that interstate operation would be legal, since the transportation company is considered an express company under the contract. He stated that informal conversations with members of the commission had raised some doubts about the legality, however, and that consequently the operation of the contract has been confined to intrastate traffic. The transportation company filed a local express tariff with the commission early this year, said Mr. Millard, but this was rejected.

Mr. Millard concluded his direct testimony with a description of the operating methods of the transportation company, including arrangements for joint officers and departments of the railway and its subsidiary, and for the honoring of railway and motor coach tickets in both motor coaches and trains.

In reply to a question from the commissioner, Mr. Millard stated that he did not know whether the transportation company was subject to the jurisdiction of the Interstate Commerce Commission, but that he believed it was, as an express company. He was unable to say what additional overhead charges would be involved in the transportation company's accounts if the salaries and expenses of the joint officers and employees were prorated.

Mr. Millard said that it was the purpose of the Cotton Belt to restrict the operations of the transportation company to Cotton Belt territory, but that in a few instances it had been forced by special circumstances to go off of or beyond its rail lines, to points served by other railways. He was questioned at length on this point and on an interline contract of the transportation company with an independent truck operator for the transportation of freight beyond Cotton Belt territory. Such interline arrangements are made in all instances by the transportation company, said Mr. Millard, the railway company coming into the transaction only to the extent that it handles the freight under a bill of lading of the transportation company.

Mr. Millard was followed on the stand by D. W. Russell, vice-president and general manager of the transportation company, who testified that in no instance does the transportation company serve by truck any point not on the rails of the Cotton Belt. The commission asked that additional information concerning the interline arrangement be put into the record at a later date.

Missouri Pacific Testimony

The Missouri Pacific next introduced its testimony. Its witness was P. J. Neff, assistant to the president of the railway and vice-president and general manager

of the Missouri Pacific Transportation Company. He described the present operations of the transportation company, saying that their purpose was to provide highway transportation in Missouri Pacific territory and to enable co-ordination of railway and highway service. The company operates motor coaches for passengers and handles freight as an express company, contracting with the railway for rail service and with local truckmen for pick-up and delivery service.

Mr. Neff said that there is need for federal regulation of both motor coach and truck operation. Under present conditions, there is no stability in rates, causing railways to make experimental reductions in railway passenger rates in an effort to meet the competition. The same is true, he said, of truck transportation. All kinds of transportation should be subject to the same kind of regulation. At this point a question was raised as to the pertinence of this testimony, and the commissioner replied by stating that the commission will welcome evidence on the need for regulation when it is based upon experience.

Three railways are interested in motor coach lines operating in Missouri Pacific territory, said Mr. Neff, setting up competitive conditions by motor transport which they could not otherwise legally bring about.

The transportation company's operations, while unprofitable in themselves, have enabled the railway to effect substantial savings in train operation costs, said Mr. Neff, making the highway operation profitable from the standpoint of the railway.

The bulk of the truck traffic moves by private or contract carriers, he said, and regulation of only common carrier truck lines would not be sufficient to put truck and railway competition on a fair basis.

Questioned by the commissioner, Mr. Neff said that the transportation company has not taken passengers from the railway. The store-door service provided for freight shipments has been confined to intrastate business, since it is debatable whether such service can legally be provided on interstate shipments. The commissioner suggested that this might be construed as discrimination against interstate shippers. Mr. Neff agreed that the service should be extended to interstate traffic if this were found to be legal.

In conclusion, Mr. Neff stated that long-haul transportation by motor coach and truck is increasing, while short-haul transportation by motor coach is decreasing.

The next witness, H. E. Watts, passenger traffic manager of the Wabash, described two contracts which that railway has with motor coach lines, providing for the handling of rail passengers in motor coaches, to save train operation. Motor coach competition has been felt most between the larger terminals, said Mr. Watts, who submitted the results of tests which indicated that motor coach lines are handling more passengers than the railways between Chicago and St. Louis and between Chicago and Detroit. He favored regulation of interstate motor coach lines, to maintain the rates of the highway operators at reasonable levels.

Truck Rates Lower than Rail

At beginning of second day of hearing, F. G. Maxwell, assistant general freight agent, Wabash, took the stand to testify concerning truck competition in Wabash territory. Keen truck competition between important centers has substantially reduced merchandise traffic, he said. Between St. Louis and Kansas City, for example, this business handled by the Wabash in the first nine months of 1925, was 2,025 tons, and only 542 tons in the first nine months of this year. Mr. Maxwell submitted a map showing the relation of through highways to the Wabash Railway lines.

Questioned by the commissioner, Mr. Maxwell stated that truck competition has existed for 10 years, but has not been a serious factor in long haul transportation for more than five years. He estimated that 60 per cent or more of traffic loss has been due to truck competition. Truck rates are generally lower than railway rates, he said, and truck lines provide store door collection and delivery service which is not given by the Wabash. There is nothing to prevent truck lines from cutting under their published rates, said Mr. Maxwell, and the many contract haulers who do not require a certificate to operate, make their rates on whatever basis is necessary to secure traffic. An increasing amount of carload traffic is also leaving the railways, he said, the reason being that the cost is less, due to store-door collection and delivery, as well as lower rates. Minimum packing requirements of truck lines also prove an attraction to traffic. The commissioner asked if the railways had considered the possibility of easing their packing requirements to meet truck competition, to which Mr. Maxwell replied that some attention had been given to this question.

Mr. Maxwell said that part of the loss of l.c.l. traffic has probably been due to increasing consolidation of such traffic into carloads through forwarding companies. A considerable volume of freight is now moving in consolidated cars, he said, but he pointed out that statistics showing the decline of l.c.l. traffic on the Wabash included only the traffic lost to trucks.

Cotton Belt Trucking Agreement

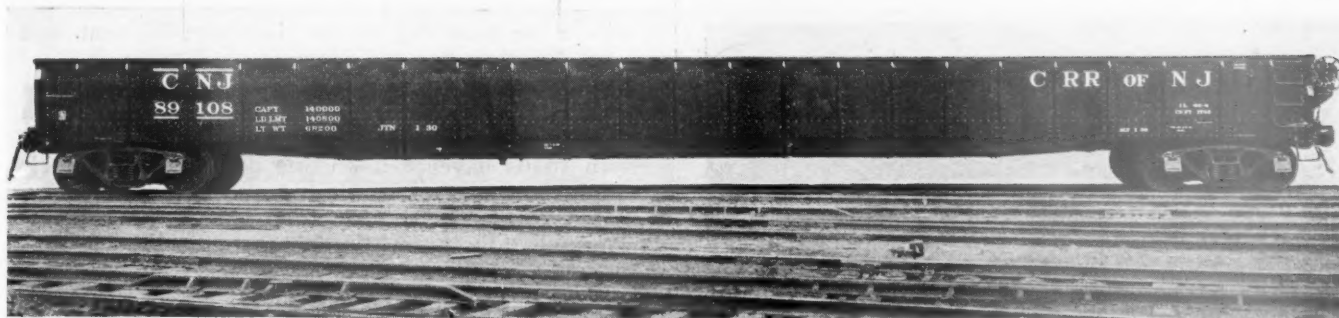
F. H. Millard, comptroller of the St. Louis-Southwestern, took the stand again to testify concerning the interline agreement between the Southwestern Transportation Company and the Independent Truck Line. He said the agreement provides for acceptance by the Transportation Company of freight at its Memphis depot for transportation to Hot Springs, Ark. This traffic moves over Cotton Belt rails between Memphis and Little Rock, with the Transportation Company acting as consignor and the Cotton Belt receiving the full rail rate. At Hot Springs freight is received by the Independent Truck Line and delivered to Hot Springs. Revenues from such traffic are shared by the Southwestern Transportation Company and the Independent Truck Line.

Information Wanted from Motor Carriers

The only independent motor coach operator to testify was H. E. Barber, president of the Egyptian Transportation System. Mr. Barber said his line, operating with state certificates, is under heavy competition from unregulated interstate lines. Between a number of points there is much more service than necessary, with the result that rate wars are constantly in progress. He suggested that railways should reduce day coach rates to attract long haul passenger traffic, and should own motor coach lines to handle short haul traffic.

During the course of the hearing Commissioner Brainerd announced that information wanted at the hearings from motor carriers was as to traffic relations with railways, extent of operations, distances covered, basis of rates, including local and interline rates, how rates are published, whether maximum or minimum, extent of traffic handled under contract with railways, whether liability insurance is carried, accounting methods, how decisions are handled, statistical information concerning capital investment, and other such items and any suggestions, based on experience concerning means of effecting adequate railway and highway co-ordination.

The hearing adjourned at St. Louis on Tuesday, November 18, to reopen at Kansas City, Mo., on November 21.



65-ft. Gondola Car Built for the Central Railroad of New Jersey by the Bethlehem Steel Company

A 65-ft. Gondola Car for the New Jersey Central

THE Bethlehem Steel Company, Johnstown, Pa., recently delivered 200 65-ft. all-steel gondola cars of 70 tons' capacity to the Central Railroad of New Jersey. These cars were designed especially for the transportation of structural steel shapes of unusual length. The total length of these cars over the end sills is 67 ft. They have an extreme width of 8 ft. 6½ in. and the height from the top of the rail to the top of the sides is 7 ft. 2¼ in. The inside dimensions of the car body is 65 ft. long, 7 ft. 9 in. wide by 3 ft. 6 in. high. The cubic capacity level full is 1,763 cu. ft. The cars have a light weight of 69,300 lb. They are designed to negotiate curves of 90 ft. radius, which enables them easily to traverse most of the curves encountered in yards and on manufacturers' sidings.

These cars, which were designed by the mechanical engineering department of the railroad, are constructed to provide ample clearance between the top of the rail and the bottom of the center sill when passing such locations as the humps in classification yards, and also to give adequate clearance for the trucks on the sharper curves. Copper bearing steel was used extensively in the construction of the car body. A feature of the body design is the provision of drain holes in the floor for removing the water from the car during flushing and to drain water which has accumulated during a rain.

The cars are equipped with Miner friction draft gears, class A-22-XB, 6-in. by 8-in. type D couplers, and American Steel Foundries radial-type cast-steel yokes.

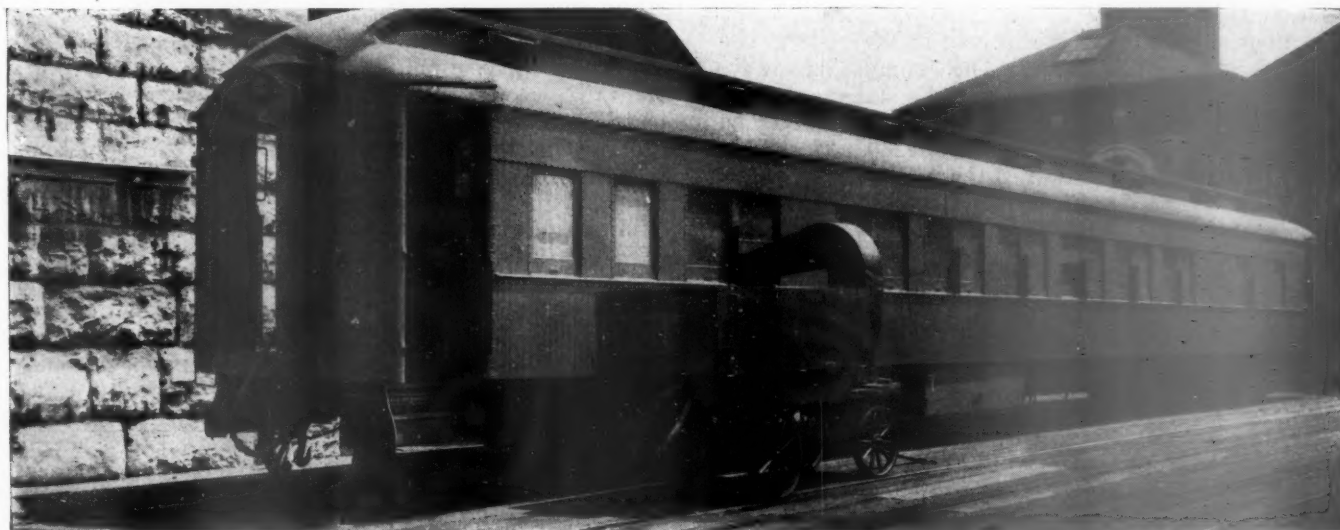
The cars are carried on four-wheel trucks which have Birdsboro cast-steel side frames with integral journal boxes and cast-steel bolsters.

Baltimore & Ohio Cools the Air in Sleeping Cars

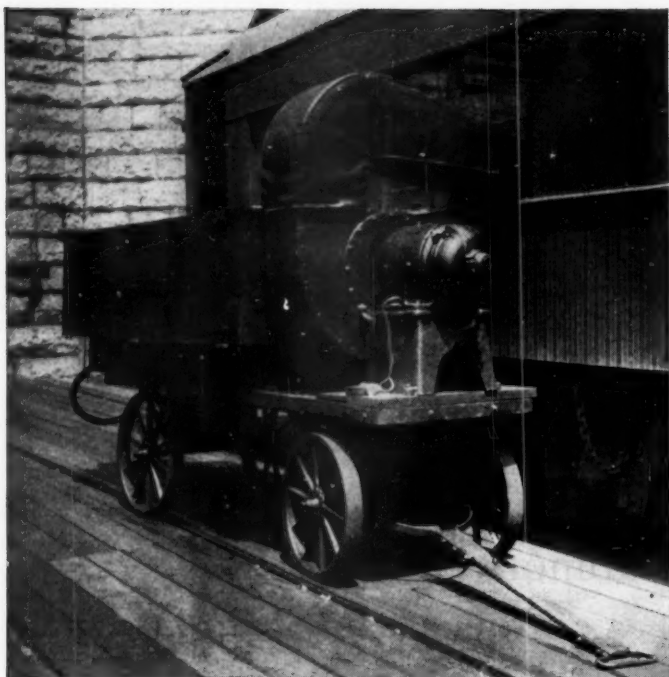
DURING the past summer the Baltimore & Ohio used the equipment shown in the illustrations to cool the air in sleeping cars before they were occupied by passengers. This apparatus, for which the railroad has patents pending, proved satisfactory for cooling the interior of cars, especially cars which had been standing in the coach yards or at stations all day in the hot sun.

The "cooler" is carried on a four-wheel baggage truck, and can be easily moved from place to place. It consists essentially of an ice box, blower, electric motor and air inlet duct with louvre, which is inserted through an open window in the passageway of the car.

The blower operates at a pressure of one ounce and has a capacity of 2,500 cu. ft. per min. It is operated by a 1¾-h.p. motor at 1,750 r.p.m. Air is drawn in through the opposite end of the "cooler" over six cakes of ice which are placed in the six compartments of the box, the partitions of which have openings 3 ft. 2 in. by 8 in. near the bottom to insure full circulation of air over the ice. The air inlet is covered with 24-mesh copper screen and is 2 ft. 6 in. wide by 10 in. high. The box is 1 ft. 11½ in. by 3 ft. 11 in. by 8 ft. 0¼ in. inside, and is loaded with cakes of ice through a side-drop hinged door



Cooling the Air in a Sleeping Car Standing at a Station—The Exhaust Fan Is in the Fifth Window from the Far End



Front View of the Car Cooler Showing the Louvre and Blower Application

opening 1 ft. 11½ in. by 8 ft. 0¼ in. It is made of No. 24 galvanized iron and is insulated with one inch of cork. The louvre is also made of No. 24 gage galvanized iron, with an 8-in. by 24½-in. adjustable nozzle leading into the car. It can be reversed to throw the air in either direction, right or left, as desired.

The air is exhausted from the car by means of an exhaust fan which is placed in a window at the opposite end of the passageway.

I. C. C. Suggests that Railroads Submit Plan

WASHINGTON, D. C.

THE Interstate Commerce Commission has "passed the buck" back to the western railroad executives in replying to their recent statement calling its attention to their serious financial situation and contending that the roads are in no condition to stand such reduction in revenue as is involved in the general revision of western grain rates. The commission on November 13 made public its reply to the statement of the railway executives dated October 25 saying that they had made no suggestion as to any action deemed "feasible to relieve the revenue situation of the western railroads or legally necessary in the premises." Should such request be presented, the commission said, it will be given earnest and prompt consideration.

Probably the most "feasible" action in the minds of the western executives at the time they submitted their statement was a reconsideration, for which they had petitioned, of the commission's order in the western grain case which they estimated would involve a revenue loss of \$20,000,000 a year; but the commission had denied these petitions the day before it replied to the letter. The roads also have pending a petition for a reconsideration of the western trunk line class rate case, from which, they said, they had been led to expect an increase in freight rate levels until that opportunity was more than offset by the order in the grain rate case,

issued on the same day as the class rate decision, and now scheduled to become effective on January 1.

The statement to which the commission has now replied referred to these cases only in connection with the outline of their general situation. Since 1925 the western roads have been seeking an increase in their rates but the commission, while admitting their need of increased revenues, has not approved of the concrete plans proposed by the roads and apparently believes that any revenue increases should be derived from commodities which the roads have not suggested for advances.

Chairman McManamy said the statement of October 25 had been considered by the commission and that he had been directed to reply as follows: "We note your purpose in submitting the statement is not to affect the decision of pending cases; and, of course, any such matters must be considered and passed upon by us upon the records in those proceedings, conformably with the law and settled practice of the commission. The purpose of your statement is:

' * * * simply to bring these concrete facts to your (our) attention that they may be given consideration in your (our) administration of the duties which Congress has directed the commission to discharge,' and that we give to the facts so presented the weight to which they are entitled in administering the grave responsibility which Congress has placed upon the commission in the interstate commerce act.

"The matters to which you have directed our attention are important, and are such that we have borne in mind and will bear in mind for appropriate consideration in the administration of the act. The statement makes no suggestion as to any action by us deemed by you to be feasible to relieve the revenue situation of the western railroads or legally necessary in the premises; should such request be presented, it will be given earnest and prompt consideration."

The present effort of the western roads to obtain an increase in their revenues dates back to 1925 when they submitted to the commission a statement urging that it take steps to bring their revenues up to a fair return basis, which they then estimated would require an increase of 11 per cent in freight rates, followed by an application for a general advance of 5 per cent as an emergency measure. The commission denied this increase on July 14, 1926, on the ground that it could properly prescribe a general percentage increase "only upon clear evidence of urgent necessity" and that the roads had failed to show a financial emergency sufficient to warrant such action. At that time it also "passed the buck" back to the roads, saying:

"The provision in Section 15a directing us to initiate, modify, establish or adjust rates so that carriers may earn a fair return, does not relieve the carriers from the primary duty of initiating rates. That function belongs to management and not to regulation. It is the right and duty of the carriers to take the steps necessary to correct improper rate relations as they may be found to exist, and to supply revenue deficiencies by initiating suitable changes in rates."

The commission also called attention to its general rate investigation under the Hoch-Smith resolution and to the fact that it had called upon the roads to furnish information as to what if any reductions might lawfully be effected in the rates on products of agriculture and whether any rates might be increased to compensate for such reductions. Later the roads proposed the general revision of class rates in western trunk line territory, and the commission has allowed a revision which involves some increase in revenues; but at the same time it ordered greater reductions in the grain case and still has the livestock case before it.

Looking Backward

Fifty Years Ago

Work is progressing rapidly on the construction of the Richmond & Virginia [now part of the Chesapeake & Ohio]. On the eastern end a canal has been converted into a roadbed and track laid from Richmond, Va., to Columbia, 56 miles, while on the western end it is expected to complete track-laying between Williamson's [now Clifton Forge] and Buchanan before January 1.—*Railroad Gazette*, November 19, 1880.

The war in passenger rates between Chicago and points west common to the Chicago & Alton and the Wabash, and involving to some extent the Burlington, the Rock Island and the Illinois Central, still continues. The fare to St. Louis is still one dollar, out of which the roads have to pay 50 cents for bridge toll over the Mississippi river. From one to three dollars will carry a passenger to almost any point on the two first named roads.—*Railway Age*, November 25, 1880.

The Baltimore & Ohio has finally perfected arrangements for a route to New York. A mutual agreement between that road, the Philadelphia & Reading [now the Reading] and the Central of New Jersey allows the Baltimore & Ohio to use the roadway of the Reading to and through Philadelphia, Pa., and northerly to a point where a connection will be formed with the Bound Brook branch of the Central of New Jersey to Jersey City, N. J. The new passenger arrangement will begin on December 1 and that for freight traffic a little later.—*Railway Age*, November 25, 1880.

Twenty-Five Years Ago

The Master Car Builders Association has adopted a rule which requires that all cars offered in interchange after September 1, 1907, must be equipped with air brakes. The Interstate Commerce Commission has issued an order that the minimum percentage of air braked cars in trains used in interstate commerce shall be increased to 75 per cent on and after August 1, 1906.—*Railway Age*, November 24, 1905.

The Tidewater and Deepwater Railways (now the Virginian) now under construction between Deepwater, W. Va., on the Chesapeake & Ohio, and Sewalls Point, near Norfolk, Va., about 446 miles, constitutes one of the first railroad projects which was started in the interior to build to the sea. The project is unique because the total capitalization involved is only \$175,000, there is no recorded bonded debt and all bills have been paid in cash. The main purpose of the undertaking appears to be the realization of old plans for a direct low grade railway from the West Virginia coal fields to the deep harbor on Hampton Roads.—*Railway Age*, November 24, 1905.

Ten Years Ago

F. S. Wynn, secretary and treasurer of the Southern, with headquarters at New York, has been elected vice-president, with headquarters at Washington, D. C.—*Railway Age*, November 19, 1920.

Statistics which have just been made public of the operations of the railroads for the first six months after their return to private management on March 1 show that during this period they performed 23 per cent more freight service and 37 per cent more passenger service than the average for the corresponding six months of the pre-war test period on which their guaranty was based. This was equivalent to the transportation of more than a full month's business, for which the companies received not a cent of return.—*Railway Age*, November 19, 1920.

New Books

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Albert Fink, 1827-1927—A Bibliographical Memoir of the Father of Railway Economics and Statistics in the United States. Re-issue of the centenary memoir originally noted in the *Booklist* for October 29, 1927. Lists Fink's writings, and biographical material about him. 21 p. Issued by Library, Bureau of Railway Economics, Washington, D. C. *Apply.*

An Economic Survey of Inland Waterway Transportation in the United States. Includes Foreword discussing sources of data, historical summary of inland waterway transportation, current programs of waterway development, co-ordination of rail and water service, economic criteria of transportation and comparative transportation costs, and bibliography. 238 p. Special series no. 56. 238 p. Pub. by Bureau of Railway Economics, Washington, D. C. *Apply.*

Ten Years After, by W. B. Storey. Address before 7th Conference of Major Industries, Chicago. "We have now been working under that Act [Transportation Act 1920] for ten years and it seems entirely fitting that before a conference such as this the results should be reviewed and suggestions made as to possible improvements." p. 3. 10 p. Publisher not given but probably available from offices of Atchison, Topeka & Santa Fe Railway, Chicago, Ill.

Periodical Articles

China, edited by Henry F. James. Especially, "The Geographic regions of China," by G. B. Cressey, "An Introduction to Chinese Philosophy," by Lyman G. Cady, "Transportation in China," by John Earl Baker, "The Geography of Manchuria," by R. B. Hall, "International Aspects of the Chinese Eastern Railway," by H. K. Norton, and "Japanese Expansion in China," by John E. Orchard. "Chinese Influence in the Development of Western United States," by G. T. Renner, states, p. 361. "One of the greatest of all contributions made by Chinese labor was in railroad building..." going on to mention the Chinese construction gangs of the Central Pacific. *Annals of the American Academy of Political and Social Science*, November, 1930, whole issue.

Inaugural Address, by The Hon. Sir Arthur Stanley. Presidential address to the Institute of Transport. "...The compulsory groupings of the railways, in contra-distinction to the *non-possumus* attitude adopted by Parliament in the pre-war era, entailed fusions of considerable magnitude whose economic administration is now shown to be a task of extreme complexity. The merging of the weak with the strong has given artificial stimulus to the smaller railway systems which by now might otherwise have succumbed in the struggle with their more virile road transport competitors. As it is, they are a burden on their more efficient and important partners, and further schemes of co-ordination and fusion will undoubtedly lead to their disappearance." p. 8. *Journal of the Institute of Transport*, November, 1930, p. 7-14.

Now, by T. J. Thackston, Jr. A quotable short poem the theme of which is "Let me sing the song... of men who live to-day." *Echo* (Furman University), October, 1930, p. 36.

The Railroad Problem. A survey of its present elements. *Security Owner*, November, 1930, p. 1-2.

The Railroads and Their Economic Service. Discusses measures of railway importance, railway development, railway facilities, freight traffic and the business situation, character of railway traffic, records and forecasts, and future traffic requirements. *Conference Board Bulletin*, October 25, 1930, p. 365-370.

Odds and Ends of Railroading

Leading Scorer

Frank Baker, end for Northwestern University, who led the players in the Western Conference in scoring for the first half of the football season this year, is the son of F. A. Baker, general foreman, Chicago & North Western, Butler, Wis.

U. S. Customs Inspector Traveled Million Miles

Willis E. Fuller, who has traveled 1,423,500 miles on Central Vermont trains between St. Albans, Vt., and Montreal in the past 26 years while performing his duties as a United States customs inspector, has been retired on pension. During the period of his service, Mr. Fuller averaged 150 miles per day the year round and was never in a railway accident.

Governor-Director

Governor Louis L. Emmerson is the twenty-second chief executive of Illinois to be a member of the board of directors of the Illinois Central. Under the railroad's unique charter, the governor of Illinois automatically becomes a director of the company upon taking his oath of office. His directorship terminates at the expiration of his term as governor.—Illinois Central Magazine.

A Born Railroader

Jackie Denninger of Pipestone, Minn., is only one year old but it is almost a safe bet that he will be a railway man when he grows up. And, going a step further, he undoubtedly will be connected with the Rock Island. Substantiating this belief regarding Jackie's future career is the genealogy of his family, which lines up thus: His father is a station agent in Pipestone, one of his grandfathers is station agent at Wilmont, his other grandfather is a section foreman at West Bend, Iowa, one uncle is an operator at Estherville, another is an operator at Burlington, one is switchman at Manly, Iowa, and still another

is a switchman at Iowa Falls. Previous to her marriage, the boy's mother was a telegraph operator. And added to this line-up is the fact that all the aforementioned relatives are employees of the Rock Island.

Japan Bans Damage Suits in

Accidents at Grade Crossings

While American railroads continue the expenditure of millions of dollars annually on safety devices and educational work to prevent grade crossing accidents, the supreme court of Japan has approached a solution of the problem from an altogether different angle, according to word received by J. E. Newman, claims attorney for the Southern Pacific.

"In the future," it is reported in a recent issue of the Japan Advertiser, published in Tokio, "the motorist who races trains to crossings will do so at his own risk. His heirs will have no claim on any railway company, public or private, if his temerity sends him on a journey he had not expected to take so immediately.

"The new ruling," the article continues, "is a recognition of the fact that this is an age of speed and that the country will be benefited more by faster train schedules than by preserving the lives of idiots who race trains to crossings.

"This is rather a cruel view of the situation," said Newman in calling attention to the findings of the Japanese high tribunal, "but it will probably have the effect of cutting down grade crossing accidents materially.

"In the United States the careless motorist, if he survives a crash with a train, too often disclaims all responsibility for the accident in spite of Stop, Look and Listen warnings, wig-wags, alarm bells, crossing gates and human watchmen. More and more, railroads are being compelled to protect their interests and property by filing damage suits against autoists who drive into their trains or cause crossing accidents by failing to observe the simplest rules of caution."

* * * *

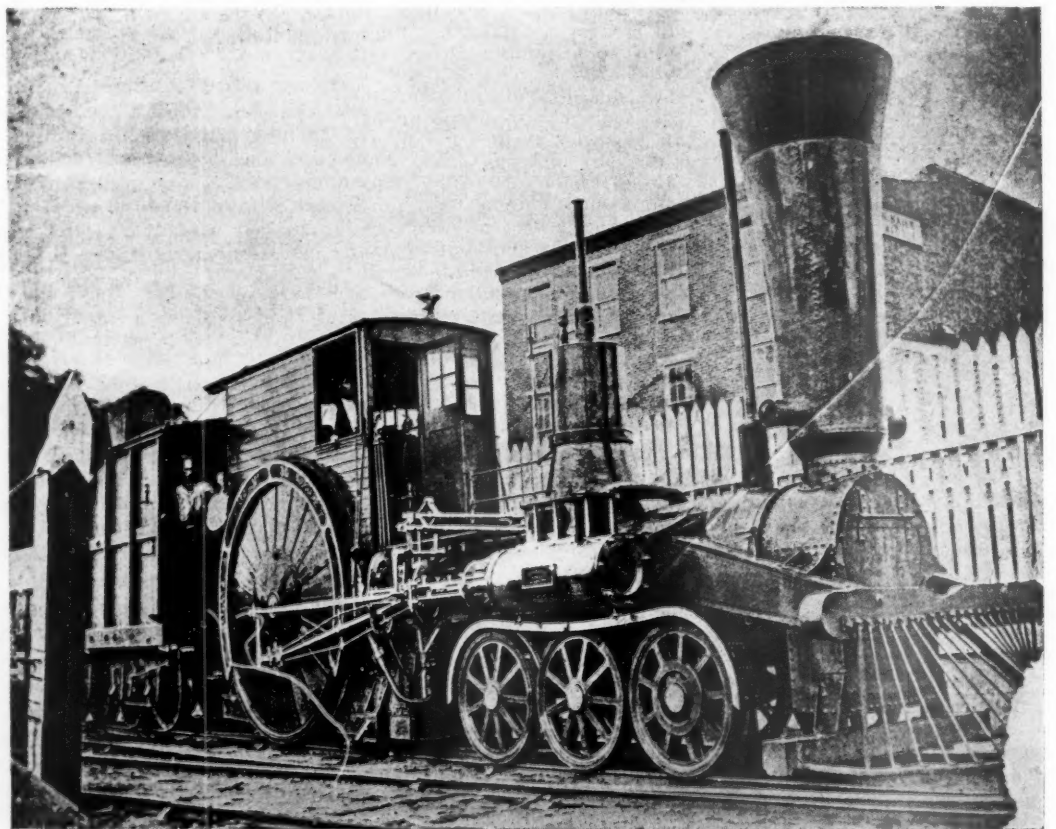
An Old Timer

The following letter has been received from W. G. Besler, chairman of the board, of the Central Railroad Company of New Jersey:

"I am enclosing a photographic plate of a remarkable monstrosity in the shape of a locomotive which, so far as I can ascertain, was in use at one time in or about Elizabeth, N. J. The plate was discovered among some old records and no one seems to know its origin.

"Perhaps this picture will be of sufficient interest to be given space in the *Railway Age*, and inquiries might be invited from some of your readers as to whether any of them may have any recollection or knowledge concerning its history."

Who Recognizes
This Locomotive?



NEWS

Railways Continue Study of N. Y. Freight Trucking

Proposal to have service performed by Express Agency being considered

Railways serving New York City are now working on a plan to provide for store-door collection and delivery of carload freight with the Railway Express Agency, Inc., as the trucking medium serving all carriers. It is hoped that by thus using the Express Agency some plan may be evolved which will eliminate the disadvantages which caused the carriers to abandon the "constructive" station deliveries last year.

Since the abandonment of these latter there has been much agitation among New York City business interests for some substitute trucking service. Three organizations on September 21 joined in forwarding a letter to the presidents of all railroads serving that city asking a frank statement from these carrier executives as to whether or not any change in the present method of handling freight in New York might be expected (see *Railway Age* of October 4, page 703). On November 6, as reported in the *Railway Age* of November 15, page 1054, the Chamber of Commerce of the State of New York adopted a resolution endorsing the principle of store-door collection and delivery of carload freight in New York City.

Meanwhile the report of the sub-committee of the presidents' conference committee of trunk line executives which had been studying the situation since August, 1929, submitted its report; these findings were then turned over to the operating and traffic executives of the interested lines for further study. Now comes the suggestion that the trucking service be performed for all carriers by the Railway Express Agency.

This proposal to employ the Express Agency is undoubtedly prompted by the desire to obviate any possibility of manipulated trucking charges which were the principal complaint in connection with the former "constructive" station deliveries. Testimony in the Interstate Commerce Commission hearings in the so-called "constructive and off-track stations" case revealed that rumors of manipulated trucking charges persisted all the while the former plan of direct delivery was in effect. It was on account of this competitive situation that the carriers petitioned the Commission for authority to cancel their "constructive" station tariffs and to limit practice of trucking

Reciprocity Hearings to be Resumed

The Interstate Commerce Commission has announced that further hearings in connection with its investigation in the matter of reciprocity in purchasing and routing will be held before Examiner John L. Rogers at New Haven, Conn., on December 2, principally for matters involving the New York, New Haven & Hartford; and at New York on December 8, principally for matters involving the Erie, the Lehigh Valley, and the Delaware, Lackawanna & Western.

in lieu of lighterage to interchanges of freight between railroad and steamship lines. This abandonment of the service was permitted by the Commission but the agitation among railroad patrons for some substitute trucking service has continued so that, during the past year, the carriers have been studying proposals to meet the demands of these shippers without at the same time perpetuating the objectionable features of the former "constructive" station plan.

New York-Chicago Air Service

The National Air Transport, carrier of mail and express between New York and Chicago, announces that, beginning December 1, Ford planes, capable of flying at 152 miles an hour, will be put in service to carry passengers between these cities, making the trip in about eight hours westward and 6½ hours eastward. Going west planes will leave Newark Metropolitan Airport at noon, and will leave Chicago going east at 9:30 a.m.

Farmers Rush Feed Shipments

Farmers, county agents, and drought relief workers are now busy making arrangements for shipments of feed and livestock before the reduced railroad rates are cancelled on November 30, according to Dr. C. W. Warburton, secretary of the federal drought relief committee. More than 52,000 carloads of feed and livestock have been shipped for farmers in the 1,016 counties designated by Secretary Hyde as eligible for the reduced rates.

Recent reports from Virginia show that 10,000 carloads of hay and other feed have been shipped into that state to supplement the exceedingly poor crops made this year. Farmers in Virginia estimate that they have saved between \$750,000 and \$1,000,000 on feed shipments.

Railway Pooling Plan Is Proposed by M. W. Potter

Former commissioner makes proposal in recent letter to I. C. C.

Asserting that railway credit never before was so low as at the present time, Mark W. Potter, a former member of the Interstate Commerce Commission, has addressed a letter to that body suggesting that it institute a proceeding on its own motion and have a hearing at which all interested parties may be heard upon the question as to what, if any, steps should be taken under existing circumstances, to increase the income of the railways. "Notwithstanding the failure of executives to make helpful suggestions," he said, "I believe that a hearing might develop some real, constructive thought which would be reassuring and helpful to the general situation," and he urged the commission to consider again a pooling plan somewhat similar to that which he advanced in the earlier stages of the efforts of the western roads to obtain an increase in rates, which have been pending before the commission for some five years.

Mr. Potter calls attention to the recent statement addressed to the commission by the Association of Western Railway Executives, outlining their present unsatisfactory condition, which he said would seem to indicate the existence of a financial emergency sufficient to warrant another application for a horizontal increase in freight rates. "I suggest," he said, "that the commission consider whether or not the proper thing to do is not to set aside a small percentage of the receipts from all shipments, such percentage to be distributed among all carriers on a fair basis—the basis of their maintenance and tax burdens. If the burden of maintenance and taxes were to be met by such an assignment, of a portion of all carrier receipts, probably no carrier would be embarrassed by inability to earn currently the cost of its current transportation expenses and all would be aided toward a fair return. In other words it seems to me that the time is ripe for the consideration of a proposition to segregate a percentage of carrier receipts from all shippers to be used to carry that part of the transportation burden which should be borne by all shippers in proportion to their use of any part of the national transportation machine maintained for all.

"The present law sanctions pooling. A
(Continued on page 1110)

Barge Line Extension on Illinois River Opposed

Comments on Inland Waterways application filed by Southwestern roads

The southwestern railroads have filed with the Interstate Commerce Commission their comments, invited by the commission, on the application of the Inland Waterways Corporation for a certificate authorizing it to extend its service to the Illinois river; they say it should not be granted.

"The barge line has now reached, we believe," said the rail carriers, "the period of its existence when experimentation must cease and the commission should no longer blindly and without justifiable facts before it further engraft it into our transportation system. We further believe that the time has come when this form of transportation must either justify itself of its own merit or fall because of its own weakness. The commission, we believe, is not longer justified in summarily ordering in rates and routes wholesale, as is here proposed, without a concise and definite showing by the barge line that economies, public interest and necessity require it. It is up to the commission to determine whether it would be better to have the southwestern rail carriers continue to operate at their present and increased efficiency, with adequate facilities to handle all the traffic, or to have two systems of transportation neither of which would be efficient.

"If a certificate is granted applicant and joint through routes and rates are ordered, they said, the differentials under the all-rail rates should be lower than those asked for. But we desire to go further," they continued, "and state that there should be circuitry limitations on said required joint through routes not as liberal, or certainly not more liberal than those prescribed by this commission in its formulae in Ex Parte 96, and the fourth supplemental report therein, 167 I. C. C. 385. In our opinion the circuitry involved in the required routes under those formulae is far too great.

"This too great disregard of circuitry, allowed on an assumed economy in rail and water transportation as against all-rail transportation which has not been proved and cannot be proved to exist, results in the establishment of unduly low and wholly unwarranted rates which are a forceful inducement to the public to use a most wasteful means of transportation which endures only because it is subsidized by the federal government."

That the latter declaration is fully justified, the rail carriers said, is illustrated by the application of the Mississippi Barge Line, a privately owned water carrier, in which it requested and obtained a flat differential of 35 cents in connection with its routes via Cincinnati and New Orleans, whereas the full measure of the 20 per cent differential enjoyed by the Federal Barge Line would produce a flat differential under the all-rail rate of 42 cents.

"Not only does the privately owned

Mississippi Barge Line forego the full measure of the differential which it could obtain, and ask for and obtain rates 7 cents higher, but in its letter dated October 15, 1930, seeking a revision of the Ex Parte 99 order, it rather frankly admits that it cannot survive even on rates 7 cents higher than those maintained by the Federal Barge Line, and observe the restrictions on circuitry of routing imposed by the commission in its Ex Parte 96 formulae.

"What more practical proof could be had that the Federal Barge Line, were the governmental subsidy withdrawn, could not endure, than the instance of one of the first privately owned and non-subsidized water carriers first refusing to ask for the full measure of differential, and in its second application asking a still lower differential and higher rate?

"Let it be remembered that the offered justification of the governmental subsidy is to exploit the possibilities of water transportation, as an experiment to encourage private capital to invest in and take over the enterprise. Is not this first venture of a privately owned and non-subsidized water carrier rather cogent and convincing practical business proof that no subsidized experiment can mislead private business judgment?

"These recent practical developments are an interesting chapter in inland waterway development which should be convincing to this commission that if the government experiment is to successfully realize its objective, of inducing private capital into the enterprise, it must be conducted on a higher level of rates."

The Santa Fe and other southwestern lines, in reply and answer in Ex Parte No. 99 to the petition of the Mississippi Valley Barge Line Company for a certificate to operate through the port of Vicksburg, etc., ask that the petition be dismissed and that the commission "grant no further liberality in its all too liberal treatment of these barge lines."

British Government Publications in New York

The British Library of Information, 551 Fifth Avenue, New York City, is an office where can be obtained, at the government prices, copies of current reports and other documents issued by H. M. Stationery Office, London. For example, the report of the Ministry of Transport on train accidents in Great Britain in 1929, which was noticed in the *Railway Age* of November 1, page 958, can be had for ten cents, plus postage. Among the leading subjects dealt with in the documents kept by this library are transport, aeronautics, radio, the British post office, including the telegraph, and various engineering subjects.

Monthly circulars are issued containing lists of selected publications, and these and other indexes will be sent free on application. The prices charged in New York are a trifle higher than those stated in Sterling money, this to cover the cost of importing. Prices are converted at the rate of 30 cents for the first shilling and 25 cents for each subsequent shilling.

Cross-Pennsylvania Line Argument Heard by I.C.C.

N. Y., P. & C. counsel emphasizes efficiency and relief of unemployment

Oral arguments were heard by the Interstate Commerce Commission on November 18 on the application of the New York, Pittsburgh & Chicago for a certificate authorizing it to build its proposed "super-railroad" from Allegheny to Easton, Pa., 283 miles, at a cost now estimated at \$177,000,000. The arguments were directed to the proposed report submitted to the commission by C. V. Burnside, assistant director of the commission's Bureau of Finance, in which he recommended that the application be denied, taking the position that if the line should ultimately be built 't should be in the interest of the eastern lines generally.

In advance of the argument a statement was issued by Henry O. Evans, president of the N. Y., P. & C., emphasizing the possibilities in the way of unemployment relief if the application is granted, asserting that 20,000 men would ultimately be employed in its construction, and H. T. Newcomb, vice-president of the Delaware & Hudson, who presented the argument as counsel for the applicant, said that it "comes at a period of extreme depression and seeks permission to spend more than \$175,000,000 for labor and materials because of confidence in the future of the United States and the eastern region." L. F. Loree, who represents the Harriman estate in connection with the project, also stated that he had not gone into the project for speculative purposes "or for any purpose whatever except to construct it and to place it in operation in the public service with the least possible delay." "Upon and after the granting of the application," he said, "I shall promote every suitable and desirable measure for completing the necessary contracts for construction, putting the necessary labor at work on the line and in the establishments where materials and supplies will be produced and, finally, placing the entire railroad in operation at the earliest practicable date."

Mr. Newcomb described the proposal as one to build in the region of the greatest traffic density in the world a road of the highest conceivable operating efficiency, providing a route over which one locomotive will haul heavier train-loads than can now be hauled over the Pennsylvania between Pittsburgh and Altoona by four locomotives of the same size. "The only opposition to applicant's proposal," he said, "is the opposition that could have been predicted in advance, namely that of the railroads now occupying the field; but they have no vested right in their relative inefficiency. Applicant has shown that all the traffic necessary to support the line could be diverted from the relatively inefficient existing routes with positive gain to the railroads that operate them.

"Intensive studies of the traffic situation have been made and show that the normal increase of traffic of the next five

years will amply support the proposed railroad at an average rate per ton per mile about 20 per cent less than the average rate now received by railroads in the same field. Skilled operating officers have shown that the new railroad can be operated with far higher efficiency than any railroad anywhere existing and experienced railroad men declare that the pres-

ent relatively inefficient railroads can divert much traffic to the new railroad and still secure greater net revenue from it than they now obtain by carrying the same traffic over their own steep grades and around their own sharp curves."

H. W. Bikle, general attorney for the Pennsylvania, presented the argument in opposition on behalf of the Pennsylvania,

Baltimore & Ohio, New York Central, Central of New Jersey, Lehigh Valley and Reading. The success of the new route, he said, would depend upon agreements with other lines to transfer traffic to the new line at its termini, as it would originate little business locally, and the lines connecting with the proposed termini
(Continued on page 1108)

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 171 Steam Railways, Including 16 Switching and Terminal Companies.

FOR THE MONTH OF SEPTEMBER, 1930 AND 1929

Item	United States		Eastern District		Southern District		Western District	
	1930	1929	1930	1929	1930	1929	1930	1929
Average number of miles operated	242,674.84	242,534.48	60,283.32	60,141.33	46,120.13	46,113.84	136,271.39	136,279.31
Revenues:								
Freight	\$363,472,597	\$435,529,613	\$145,583,876	\$183,193,092	\$62,422,315	\$74,556,461	\$155,466,406	\$177,780,060
Passenger	a 59,092,353	b 75,759,274	34,146,504	41,927,251	6,331,158	9,032,497	18,614,691	24,799,526
Mail	8,741,886	c 11,260,968	3,347,837	4,816,682	1,434,822	1,786,831	3,959,227	4,657,455
Express	9,969,228	13,197,980	4,765,043	6,501,184	1,253,532	1,712,778	3,950,653	4,984,018
All other transportation	15,038,239	18,504,116	8,713,748	10,765,365	1,090,329	1,376,785	5,234,162	6,361,966
Incidental	10,329,943	12,091,226	5,327,421	5,817,083	1,103,494	1,294,710	3,899,028	4,979,433
Joint facility—Cr.	1,093,566	1,349,321	368,620	531,896	188,018	210,118	536,928	607,307
Joint facility—Dr.	269,200	327,580	77,492	82,418	40,339	37,761	151,369	207,401
Railway operating revenues	467,468,612	567,364,918	202,175,557	253,470,135	73,783,329	89,932,419	191,509,726	223,962,364
Expenses:								
Maintenance of way and structures	59,208,558	77,687,389	26,312,670	33,307,841	9,440,929	12,757,293	23,454,959	31,622,255
Maintenance of equipment	80,854,471	99,995,255	37,834,822	47,383,339	13,861,364	17,549,169	29,158,285	35,062,747
Traffic	10,267,429	10,638,316	4,014,323	4,131,297	1,964,022	1,942,342	4,289,084	4,564,677
Transportation	151,148,067	175,568,894	70,500,876	82,825,434	23,265,990	26,556,119	57,381,201	66,187,341
Miscellaneous operations	4,227,990	5,071,988	1,985,283	2,382,557	397,115	465,319	1,845,592	2,224,112
General	15,573,338	16,191,718	6,798,489	7,076,305	2,621,224	2,755,314	6,153,625	6,360,099
Transportation for investment—Cr.	1,148,844	1,294,933	213,690	335,970	101,452	127,190	833,702	831,773
Railway operating expenses	320,131,009	383,858,627	147,232,773	176,770,803	51,449,192	61,898,366	121,449,044	145,189,458
Net revenue from railway operations	147,337,603	183,506,291	54,942,784	76,699,332	22,334,137	28,034,053	70,060,682	78,772,906
Railway tax accruals	31,989,993	38,263,987	13,550,155	16,209,632	5,551,880	6,651,820	12,887,958	15,402,535
Uncollectible ry. revenues	67,852	100,785	24,535	42,445	10,252	22,932	33,065	35,408
Railway operating income	115,279,758	145,141,519	41,368,094	60,447,255	16,772,005	21,359,301	57,139,659	63,334,963
Equipment rents—Dr. balance	8,737,492	8,531,903	4,159,552	3,429,669	d 446,003	d 884,345	5,023,943	5,986,579
Joint facility rent—Dr. balance	2,463,937	2,263,728	1,447,151	1,152,189	115,044	205,472	901,742	906,067
Net railway operating income	104,078,329	134,345,888	35,761,391	55,865,397	17,102,964	22,038,174	51,213,974	56,442,317
Ratio of expenses to revenues (per cent)	68.48	67.66	72.82	69.74	69.73	68.83	63.42	64.83

FOR NINE MONTHS ENDED WITH SEPTEMBER, 1930 AND 1929

Average number of miles operated	242,609.13	242,515.62	60,301.89	60,165.34	46,113.39	46,112.65	136,193.85	136,237.63
Revenues:								
Freight	\$3,108,116,684	\$3,622,921,675	\$1,327,038,280	\$1,572,052,073	\$569,755,505	\$652,246,110	\$1,211,322,899	\$1,398,623,492
Passenger	e 573,111,503	f 670,908,846	314,968,664	356,901,126	75,051,587	92,124,654	183,091,252	221,883,066
Mail	81,987,298	g 110,842,511	31,317,814	43,400,281	13,709,379	17,476,583	36,960,105	49,965,647
Express	87,060,390	108,467,954	39,144,982	49,986,394	12,698,181	16,700,202	35,217,227	41,781,358
All other transportation	135,347,585	160,192,848	78,618,532	92,317,751	9,941,742	11,816,245	46,787,311	56,058,852
Incidental	89,994,895	101,271,473	46,387,020	50,681,064	11,896,215	12,656,115	31,711,660	37,934,294
Joint facility—Cr.	9,937,994	10,008,214	3,371,641	3,312,099	1,769,436	1,604,927	4,796,917	5,091,188
Joint facility—Dr.	2,830,620	2,929,284	851,449	732,725	308,223	317,942	1,670,948	1,878,617
Railway operating revenues	4,082,725,729	4,781,684,237	1,839,995,484	2,167,918,063	694,513,822	804,306,894	1,548,216,423	1,809,459,280
Expenses:								
Maintenance of way and structures	561,981,414	656,884,227	235,843,902	272,514,059	98,132,982	115,329,779	228,004,530	269,040,389
Maintenance of equipment	790,589,983	907,803,108	366,142,646	429,446,588	141,753,533	161,179,387	282,693,804	317,177,133
Traffic	98,110,649	97,520,935	37,514,922	36,983,883	18,109,238	17,865,313	42,486,489	42,671,739
Transportation	1,425,017,374	1,576,652,719	670,960,155	743,222,273	228,225,392	250,635,249	525,831,827	582,795,197
Miscellaneous operations	40,603,342	44,616,747	19,037,523	20,385,639	4,807,630	4,950,647	16,758,189	19,280,461
General	146,127,737	145,843,134	64,022,699	63,218,720	24,712,455	24,948,183	57,392,583	57,676,231
Transportation for investment—Cr.	9,887,399	9,923,836	1,957,102	2,365,030	862,219	804,795	7,068,078	6,754,011
Railway operating expenses	3,052,543,100	3,419,397,034	1,391,564,745	1,563,406,132	514,879,011	574,103,763	1,146,099,344	1,281,887,139
Net revenue from railway operations	1,030,182,629	1,362,287,203	448,430,739	604,511,931	179,634,811	230,203,131	402,117,079	527,572,141
Railway tax accruals	276,892,645	308,953,847	115,370,165	129,578,299	51,446,384	56,534,633	110,076,096	122,840,915
Uncollectible ry. revenues	731,113	860,017	289,052	347,018	124,958	203,403	317,103	309,596
Railway operating income	752,558,871	1,052,473,339	332,771,522	474,586,614	128,063,469	173,465,095	291,723,880	404,421,630
Equipment rents—Dr. balance	72,839,314	70,644,624	36,799,358	36,472,862	774,888	d 1,567,888	35,265,068	35,739,650
Joint facility rent—Dr. balance	20,291,996	18,974,262	10,559,794	9,625,628	2,056,466	1,782,473	7,675,736	7,566,161
Net railway operating income	659,427,561	962,854,453	285,412,370	428,488,124	125,232,115	173,250,510	248,783,076	361,115,819
Ratio of expenses to revenues (per cent)	74.77	71.51	75.63	72.12	74.14	71.38	74.03	70.84

a Includes \$3,000,392 sleeping and parlor car surcharge. b Includes \$3,670,028 sleeping and parlor car surcharge. c Includes approximately \$2,123,505 back mail pay. d Deficit or other reverse items. e Includes \$27,967,939 sleeping and parlor car surcharge. f Includes \$31,046,183 sleeping and parlor car surcharge. g Includes approximately \$27,937,089 back mail pay.

Compiled by the Bureau of Statistics, Interstate Commerce Commission, Subject to revision

Operating Statistics of Large Steam Railways—Selected Items for September, 1930, Com

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line				
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross. Excluding locomotives and tenders	Net. Revenue and non-revenue	Serv-ice-able	Un-serv-ice-able	Per cent un-serv-ice-able	Stored	
New England Region:													
Boston & Albany.....	1930	407	139,453	148,905	14,891	4,120	67.1	214,481	77,750	88	43	33.0	28
	1929	407	202,944	215,082	19,633	5,140	70.6	262,553	101,094	105	19	15.4	36
Boston & Maine.....	1930	2,066	342,304	388,555	53,446	11,575	69.9	601,781	230,388	249	47	15.9	65
	1929	2,059	390,313	463,247	64,546	14,055	71.7	710,993	285,151	245	43	14.8	36
N. Y., New H. & Hart.....	1930	2,093	394,959	462,563	30,433	13,977	64.6	765,780	299,215	272	69	20.3	48
	1929	2,102	485,968	560,104	38,701	17,284	70.9	902,203	383,203	275	55	16.7	11
Great Lakes Region:													
Delaware & Hudson.....	1930	875	290,133	384,352	40,537	8,846	62.4	579,339	273,869	236	35	12.8	103
	1929	875	328,166	435,275	44,660	10,812	69.0	640,408	316,199	240	31	11.6	82
Del., Lack. & Western.....	1930	998	414,628	455,311	52,925	14,189	66.5	803,108	322,602	226	56	19.8	38
	1929	998	488,710	538,679	64,110	18,302	71.2	995,234	430,033	238	51	17.6	29
Erie (inc. Chi. & Erie).....	1930	2,316	805,591	866,807	62,618	35,914	60.9	2,207,755	839,574	396	101	20.2	92
	1929	2,316	937,015	1,006,576	78,658	43,872	65.8	2,565,585	1,058,964	406	93	18.6	28
Grand Trunk Western.....	1930	1,020	225,718	228,659	3,959	6,183	63.7	353,874	128,718	75	33	30.8	43
	1929	992	337,895	339,723	2,155	9,877	65.2	557,553	212,982	111	28	19.9	4
Lehigh Valley	1930	1,343	447,322	478,734	45,713	14,484	64.6	874,463	370,812	251	94	27.1	39
	1929	1,343	559,545	619,441	74,381	18,710	66.2	1,128,349	507,101	275	84	23.3	37
Michigan Central	1930	1,865	431,075	433,271	13,878	14,054	59.0	845,619	299,298	159	55	25.7	42
	1929	1,822	532,268	533,928	17,280	19,444	62.7	1,092,813	402,368	195	36	15.5	31
New York Central.....	1930	6,468	1,730,302	1,886,164	123,445	67,245	60.5	4,175,450	1,723,110	1,024	343	25.1	386
	1929	6,467	2,013,385	2,226,429	168,764	82,384	64.2	4,909,865	2,127,342	1,003	277	21.6	206
New York, Chi. & St. L....	1930	1,660	551,855	561,226	7,817	17,778	60.6	1,047,142	381,760	205	59	22.4	49
	1929	1,665	638,130	644,965	8,251	22,107	67.0	1,218,081	479,984	200	59	22.8	16
Pere Marquette	1930	2,201	388,683	392,646	3,386	9,734	60.0	606,418	237,283	172	20	10.4	34
	1929	2,178	503,216	508,029	5,397	13,078	63.2	769,644	327,314	186	26	12.1	...
Pitts. & Lake Erie.....	1930	231	94,529	95,457	1,221	3,729	58.6	291,089	163,058	60	12	16.3	31
	1929	231	130,575	133,343	1,896	4,748	66.2	359,151	210,232	48	14	22.0	7
Wabash	1930	2,497	672,906	723,533	12,371	21,340	64.4	1,234,609	454,851	300	92	23.5	54
	1929	2,497	855,842	899,319	18,486	27,072	65.5	1,542,962	594,123	294	66	18.4	15
Central Eastern Region:													
Baltimore & Ohio.....	1930	5,541	1,542,012	1,804,649	215,387	50,977	60.5	3,456,112	1,557,198	922	255	21.7	195
	1929	5,536	1,972,237	2,267,870	293,328	63,517	63.2	4,192,355	1,979,479	1,010	188	15.7	90
Big Four Lines.....	1930	2,712	702,948	733,663	21,841	22,388	60.6	1,468,458	675,583	305	162	34.7	24
	1929	2,717	838,343	874,289	22,485	27,396	62.0	1,773,937	830,740	321	115	26.4	14
Central of New Jersey....	1930	692	226,231	247,441	39,201	6,596	56.3	451,215	202,228	154	34	18.0	22
	1929	691	265,545	285,372	45,935	7,876	59.7	519,963	242,070	170	31	15.5	23
Chicago & Eastern Ill....	1930	946	196,400	197,916	2,807	5,306	65.3	319,371	138,568	94	53	36.3	35
	1929	946	244,286	244,920	3,414	7,108	68.0	423,872	195,126	100	68	40.6	31
Elgin, Joliet & Eastern....	1930	453	116,781	122,445	5,517	3,209	62.0	245,836	126,808	80	13	13.8	13
	1929	453	134,028	142,023	6,815	3,960	64.6	293,164	153,980	76	12	13.4	...
Long Island	1930	409	48,863	53,332	12,241	690	53.6	48,925	17,730	43	8	15.9	...
	1929	400	51,053	55,629	14,240	627	58.5	39,360	15,508	45	5	9.2	4
Pennsylvania System.....	1930	10,675	3,385,516	3,809,700	385,164	124,092	62.9	8,225,619	3,706,498	2,384	294	11.0	787
	1929	10,738	4,180,193	4,779,264	463,291	156,974	65.4	10,340,657	4,943,568	2,496	333	11.8	496
Reading	1930	1,448	542,306	590,966	52,922	15,059	57.8	1,080,533	516,888	312	68	18.0	52
	1929	1,451	601,268	657,892	48,824	18,338	64.2	1,229,792	620,895	332	59	15.0	44
Pocahontas Region:													
Chesapeake & Ohio.....	1930	3,112	1,126,979	1,201,078	51,244	41,962	54.4	3,535,887	1,879,758	551	106	16.2	108
	1929	3,080	1,266,727	1,358,084	56,179	46,862	56.8	3,796,852	2,066,071	586	105	15.2	58
Norfolk & Western.....	1930	2,230	770,095	851,454	41,799	28,940	57.0	2,475,227	1,291,931	462	40	8.0	132
	1929	2,230	877,529	995,923	54,250	35,002	58.9	2,946,938	1,587,447	453	52	10.2	77
Southern Region:													
Atlantic Coast Line.....	1930	5,160	543,235	545,246	8,139	12,897	62.5	713,121	264,100	390	60	13.4	125
	1929	5,153	529,858	531,973	7,699	13,999	63.3	770,765	289,862	415	51	10.9	108
Central of Georgia.....	1930	1,900	223,694	224,702	3,366	5,764	67.9	311,554	123,215	123	29	19.3	7
	1929	1,900	258,691	260,654	3,730	7,035	74.1	359,087	151,427	135	17	11.3	10
Ill. Cent. (inc. Y. & M. V.)	1930	6,695	1,586,226	1,602,408	28,852	42,842	60.0	2,853,252	1,157,671	708	145	17.0	69
	1929	6,695	1,902,662	1,918,612	28,980	55,789	65.5	3,507,049	1,513,112	742	109	12.8	21
Louisville & Nashville....	1930	5,252	1,367,714	1,445,822	39,432	29,118	56.9	2,074,156	972,946	582	130	18.3	128
	1929	5,247	1,562,660	1,666,036	51,206	35,737	60.6	2,451,450	1,190,548	594	109	15.5	31
Seaboard Air Line.....	1930	4,479	468,652	485,286	4,936	11,455	62.0	670,488	257,628	276	28	9.2	38
	1929	4,475	480,266	495,610	5,905	12,437	66.6	682,457	274,165	273	46	14.4	31
Southern	1930	6,676	1,253,030	1,276,289	22,044	30,244	63.2	1,686,907	660,239	820	160	16.3	239
	1929	6,679	1,407,013	1,439,476	31,488	37,261	68.5	1,992,461	819,738	833	122	12.8	189
Northwestern Region:													
Chi. & North Western.....	1930	8,459	1,362,930	1,429,099	25,619	35,471	58.7	2,254,223	832,202	756	99	11.6	107
	1929	8,467	1,523,030	1,605,526	29,037	41,290	62.3	2,482,509	968,301	745	80	9.7	51
Chi. Gt. Western.....	1930	1,459	279,721	299,905	26,573	9,251	61.9	548,657	208,534	99	12	...	7
	1929	1,459	292,327	338,388	17,380	9,568	62.5	564,295	214,623	120	22	...	22
Chi., Milw., St. P. & Pac..	1930	11,313	1,560,555	1,668,134	91,977	45,577	60.3	2,871,364	1,174,203	824	120	12.7	255
	1929	11,244	1,794,633	1,924,231	107,119	54,664	62.8	3,316,473	1,401,484	782	139	15.1	120
Chi., St. P., Minn. & Om..	1930	1,714	288,649	317,008	13,757	6,266	66.1	357,059	148,097	151	23	13.3	38
	1929	1,724	319,362	345,754	14,300	7,248	67.2	407,596	170,883	146	27	15.5	24
Great Northern	1930	8,338	921,274	932,568	34,718	35,708	61.3	2,366,607	1,099,234	487	149	23.4	69
	1929	8,341	978,244	1,013,442	66,814	39,638	64.2	2,546,857	1,238,852	480	134	21.7	29
Minn., St. P. & S. St. M....	1930	4,351	462,800	475,441	5,680	13,815	65.4	807,834	374,646	179	41	18.7	17
	1929	4,357	53										

pared with September, 1929, for Roads with Annual Operating Revenue Above \$25,000,000

Region, road and year	Average number of freight cars on line			Per cent un-serv-ice-able	Gross ton-miles per train-hour, ex-cluding locomotives and tenders	Gross ton-miles per train-mile, ex-cluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Loco-motive-miles per live-day
	Home	Foreign	Total										
New England Region:													
Boston & Albany.....1930	2,908	3,608	6,516	7.3	20,217	1,538	558	18.9	398	31.4	6,366	153	41.7
1929	2,713	5,165	7,878	9.1	18,300	1,294	498	19.7	428	30.8	8,278	164	62.9
Boston & Maine.....1930	10,957	8,952	19,909	7.8	21,661	1,758	673	19.9	386	27.7	3,717	104	49.8
1929	8,042	13,608	21,650	3.8	21,988	1,822	731	20.3	439	32.2	4,616	104	61.1
N. Y., New H. & Hart..1930	17,885	14,483	32,368	13.5	23,611	1,939	758	21.4	308	22.3	4,765	101	48.1
1929	13,798	18,066	31,864	8.7	22,843	1,857	789	22.2	401	25.5	6,077	104	60.5
Great Lakes Region:													
Delaware & Hudson....1930	9,006	5,031	14,037	4.4	25,651	1,997	944	31.0	650	33.7	10,430	117	52.4
1929	7,884	6,171	14,055	4.0	25,265	1,951	964	29.2	750	37.2	12,046	127	58.9
Del., Lack. & Western...1930	17,265	6,419	23,684	5.9	25,171	1,937	778	22.7	454	30.0	10,773	128	60.1
1929	14,488	9,267	23,755	4.5	25,827	2,036	880	23.5	603	36.1	14,361	127	69.5
Erie (inc. Chi. & Erie)..1930	36,188	16,803	52,991	4.2	38,476	2,741	1,042	23.4	528	37.1	12,084	99	62.3
1929	27,461	24,751	52,212	5.2	35,626	2,738	1,130	24.1	676	42.6	15,240	103	72.5
Grand Trunk Western...1930	4,314	9,779	14,093	7.6	23,431	1,568	570	20.8	304	23.0	4,208	98	71.6
1929	3,468	15,027	18,495	5.6	22,106	1,650	630	21.6	384	27.3	7,158	101	82.5
Lehigh Valley .....1930	20,086	7,819	27,905	8.3	28,234	1,955	829	25.6	443	26.8	9,205	133	50.7
1929	18,816	12,312	31,128	6.3	27,773	2,017	906	27.1	543	30.3	12,582	140	64.5
Michigan Central.....1930	23,967	13,658	37,625	5.4	33,699	1,962	694	21.3	265	21.1	5,348	98	69.7
1929	15,389	17,791	33,180	5.5	32,653	2,053	756	20.7	404	31.1	7,361	102	79.5
New York Central.....1930	76,162	65,223	141,385	6.4	32,083	2,413	996	25.6	406	26.2	8,881	93	49.0
1929	58,404	83,588	141,992	4.8	31,784	2,439	1,057	25.8	499	30.1	10,965	96	62.4
New York, Chi. & St. L..1930	15,563	9,205	24,768	9.6	28,461	1,897	692	21.5	514	39.5	7,665	94	71.8
1929	11,853	13,029	24,882	6.6	26,654	1,909	752	21.7	643	44.2	9,611	98	84.2
Pere Marquette .....1930	9,633	6,167	15,800	4.5	22,356	1,560	610	24.4	501	34.2	3,594	90	69.0
1929	9,291	11,084	20,375	3.1	20,757	1,529	650	25.0	535	33.8	5,010	98	80.8
Pitts. & Lake Erie.....1930	17,304	6,403	23,707	6.0	38,051	3,079	1,725	43.7	229	8.9	23,508	97	44.9
1929	10,231	11,159	21,390	6.2	31,930	2,751	1,610	44.3	328	11.2	30,301	109	73.5
Wabash .....1930	19,305	10,464	29,769	3.4	30,635	1,835	676	21.3	509	37.1	6,073	106	62.5
1929	14,164	15,194	29,358	2.6	29,222	1,803	694	21.9	675	46.9	7,932	109	84.9
Central Eastern Region:													
Baltimore & Ohio.....1930	78,386	26,077	104,463	5.6	26,031	2,241	1,010	30.5	497	26.9	9,368	132	57.2
1929	64,487	37,254	101,741	4.9	23,639	2,126	1,004	31.2	649	32.9	11,918	136	71.3
Big Four Lines.....1930	22,727	23,383	46,110	3.7	30,956	2,089	961	30.2	488	26.7	8,304	104	53.9
1929	18,330	24,162	42,492	5.0	28,899	2,116	991	30.3	652	34.7	10,190	105	68.6
Central of New Jersey...1930	17,028	9,261	26,289	8.5	24,580	1,994	894	30.7	256	14.9	9,737	137	51.0
1929	14,534	11,534	26,068	7.5	23,469	1,958	912	30.7	310	16.9	11,685	135	54.8
Chicago & Eastern Ill...1930	13,079	3,371	16,450	47.6	26,217	1,626	706	26.1	281	16.5	4,881	119	45.5
1929	12,068	5,103	17,171	43.9	25,490	1,735	799	27.5	379	20.3	6,874	113	49.2
Elgin, Joliet & Eastern...1930	9,576	5,527	15,103	4.0	16,584	2,105	1,086	39.5	280	11.4	9,334	112	45.9
1929	7,644	8,355	15,999	8.6	15,660	2,187	1,149	38.9	321	12.8	11,325	121	56.4
Long Island .....1930	714	5,893	6,607	.9	7,202	1,001	363	25.7	89	6.5	1,476	280	42.9
1929	566	5,692	6,258	1.3	5,819	771	304	24.7	83	5.7	1,291	350	47.7
Pennsylvania System...1930	228,452	75,686	304,138	4.6	29,902	2,430	1,095	29.9	406	21.6	11,574	113	52.2
1929	195,922	93,739	289,731	5.1	28,848	2,474	1,183	31.5	569	27.6	15,346	116	61.8
Reading .....1930	32,591	11,524	44,115	4.8	22,224	1,992	953	34.3	391	19.7	11,901	134	56.5
1929	23,908	16,098	40,006	6.4	22,521	2,045	1,033	33.9	517	23.8	14,259	133	60.2
Pocahontas Region:													
Chesapeake & Ohio.....1930	41,450	11,496	52,946	2.4	39,810	3,137	1,668	44.8	1,183	48.6	20,133	80	63.5
1929	33,499	17,919	51,418	2.3	37,104	2,997	1,631	44.1	1,339	53.5	22,357	84	68.3
Norfolk & Western.....1930	33,208	7,659	40,867	1.1	44,721	3,214	1,678	44.6	1,054	41.4	19,312	105	59.2
1929	26,029	11,420	37,449	1.2	45,013	3,358	1,809	45.4	1,413	52.9	23,733	112	69.3
Southern Region:													
Atlantic Coast Line.....1930	25,918	5,961	31,879	6.9	18,923	1,313	486	20.5	276	21.6	1,706	106	41.0
1929	20,612	6,120	26,732	6.4	20,471	1,455	547	20.7	361	27.6	1,875	103	38.7
Central of Georgia.....1930	6,723	2,996	9,719	10.7	19,851	1,393	551	21.4	423	29.1	2,162	120	50.0
1929	4,242	4,968	9,210	5.2	19,805	1,388	585	21.5	548	34.4	2,657	127	58.0
Ill. Cent. (inc. Y. & M. V.)1930	47,289	17,131	64,420	7.2	25,543	1,799	730	27.0	599	36.9	5,764	118	63.8
1929	37,409	26,355	63,764	3.7	24,835	1,843	795	27.1	791	44.5	7,534	119	76.3
Louisville & Nashville...1930	47,280	11,531	58,811	11.3	21,942	1,517	711	33.4	551	29.0	6,176	127	69.5
1929	40,789	15,499	56,288	11.9	20,974	1,569	762	33.3	705	34.9	7,564	133	81.4
Seaboard Air Line.....1930	16,430	5,297	21,727	4.3	19,369	1,431	550	22.5	395	28.3	1,917	123	53.8
1929	14,444	6,475	20,919	6.9	18,936	1,421	571	22.0	437	29.7	2,042	124	52.5
Southern .....1930	53,783	13,960	67,743	13.5	19,939	1,346	527	21.8	325	22.8	3,297	143	44.2
1929	46,594	18,447	65,041	12.6	20,206	1,416	583	22.0	420	27.9	4,091	147	51.4
Northwestern Region:													
Chi. & North Western...1930	50,014	25,412	75,426	7.7	22,508	1,654	611	23.5	368	26.7	3,280	113	56.7
1929	46,339	33,279	79,618	6.0	21,449	1,630	636	23.5	405	27.8	3,812	120	66.0
Chi. Gt. Western.....1930	3,547	4,699	8,246	7.3	29,600	1,961	746	22.5	781	55.9	4,764	120	97.3
1929	4,234	5,636	9,870	7.1	26,485	1,930	734	22.4	674	48.1	4,903	125	83.0
Chi., Milw., St. P. & Pac.1930	57,490	19,324	76,814	2.7	24,810	1,840	752	25.8	510	32.8	3,460	112	62.1
1929	50,479	32,530	83,009	2.8	23,878	1,848	781	25.6	563	35.0	4,155	119	73.5
Chi., St. P., Minn. & Om.1930	2,484	10,085	12,569	7.5	16,946	1,237	513	23.6	393	25.1	2,880	112	63.3
1929	2,285	10,567	12,852	5.6	16,732	1,276	535	23.6	443	28.0	3,305	116	69.3
Great Northern .....1930	42,143	15,144	57,287	4.8	32,421	2,569	1,193	30.8	640	33.9	4,394	102	50.7
1929	40,189	21,027	61,216	4.3	31,571	2,603	1,266	31.3	675	33.6	4,951	111	58.7
Minn., St. P. & S. St. M.1930	19,795	5,268	25,063	4.1	22,233	1,746	810	27.1	501	28.3	2,870	86	72.9
1929	19,598	7,882	27,480	3.0	20,783	1,711	798	26.6	516	29.0	3,237	92	78.1
Northern Pacific.....1930	40,439	6,461	46,900	9.6	26,520	1,957	833	24.9	454	27.4	3,294		

News of the Week

(Continued from page 1105)

have shown no inclination to make such agreements. Construction of the line, he said, would result in a multiplication of railroads in a section now efficiently and adequately served by existing lines, and he pointed to the increasing diversion of traffic from existing railroads by motor vehicles and waterways.

Florida Restrictions Cancelled

The four principal railroads in Florida have cancelled restrictive baggage regulations which have been in force because of the Mediterranean fruit fly.

Seek Modification of I. C. C. Order

The lines in Official Classification territory have petitioned the Interstate Commerce Commission for a modification of its order in the Western Trunk Line class rate case.

N. Y. Traffic Club Meeting

The New York Traffic Club will hold its annual election and informal dinner at the Hotel Commodore, Forty-second street, on Tuesday evening, November 25. The dinner will be followed by a musical entertainment.

New York Railroad Club Annual Dinner

The annual dinner of the New York Railroad Club will be held at the Commodore Hotel, New York City, on Wednesday evening, December 17.

The speaker of the evening will be Judge Harold B. Wells of the Court of Errors and Appeals, State of New Jersey. George Le Boutillier, newly elected president of the club, will preside.

Railway Club Meetings

The Transportation Club of Louisville, Ky., will hold its annual election and business meeting at the Brown Hotel on December 4, and its annual banquet on December 16.

The next meeting of the Pacific Railway Club will be held in the rooms of the Transportation Club in the Palace Hotel, San Francisco, on December 11. This will be called "Associate Members Night" and a committee of these members, headed by Wm. G. Tawse, of the Superheater Company, will be responsible for the program. Following the entertainment there will be a repast, at which the entire membership of the club will be guests of the associates.

Automobiles As Baggage—Chicago to San Antonio

The Missouri Pacific, on November 15, established baggage service for automobiles for tourists traveling from Chicago, St. Louis, and Kansas City to Texas and Louisiana points, the route being via the Chicago & Eastern Illinois, the Illinois Central and the Chicago, Rock Island & Pacific from Chicago to points on the Missouri Pacific. Five adult fares will

entitle the patron to transportation for two passengers and one automobile, and provide a worthwhile saving. The round trip passenger rate from Chicago to San Antonio is \$70.05, while the freight rate on an automobile is \$5.46 per 100 lb., with a minimum charge of \$109.20. Under the baggage service plan, the cost of transporting two passengers and one Chevrolet car weighing 2,500 lb. from Chicago to San Antonio and return is \$350.25, as compared with \$413.10 if the patron purchases two round trip passenger tickets and ships his automobile to and from San Antonio by freight.

Rail Tunnel Under Delaware River Proposed

Construction of a railroad tunnel under the Delaware river to connect the Pennsylvania's passenger terminal in Camden, N. J., with its new underground suburban station in Philadelphia, Pa., has been suggested by President W. W. Atterbury as one solution of the transportation problems of commuters between southern New Jersey and Philadelphia. Under General Atterbury's plan, the tube, which is offered as a substitute for train service over the Delaware River bridge, on which grades are too heavy to permit efficient operation of locomotives, would be built by the Delaware River Bridge Joint Commission and financed by bonds to be amortized by earnings from the subway.

Cotton Belt Shortens St. Louis-Memphis Route

The St. Louis Southwestern, by constructing a line from Caraway, Ark., to Truman, by acquiring the Arkansas Short Line and by operating over the Missouri Pacific between Fair Oaks, Ark., and Bridge Junction, has shortened its route's distance between St. Louis, Mo., and Memphis, Tenn., by 61.8 miles, and has been able to shorten the schedule of freight trains 4 hr. 5 min. over the previous route, which was by way of the St. Louis Southwestern from St. Louis to Brinkley and the Chicago, Rock Island & Pacific from Brinkley to Memphis. Cars now leave St. Louis at 8:30 p.m. and arrive in Memphis at 11:55 p.m. the next night.

An Exercise in Geography

Freight train No. 33 of the Gulf, Mobile & Northern, when it passed through Jackson, Miss., southbound, on October 9, carrying what is described as a fairly representative cargo, showed on the passing report, the following interesting data:

Cars of cotton, lumber, rosin, wire, furniture, flour, coal, starch, implements, brick, autos, roofing, pulp, linseed oil, steel, cross-ties and merchandise and returning tank cars.

Originating points for these cars were Mobile, Ala.; Macon, Miss.; Tuskegee, Ala.; Somerville, Paris, Dickson, Tenn.; Branch, Miss.; Toledo, Ohio; Benton, Ky.; Hehenwald, Tenn.; Dell, Blythville, Ark.; Birmingham, Ala.; Chicago, Ill.; Carbon Hill, Ala.; Minneapolis, Minn.; Nashville, Oakland, Daisey, Tenn.; Detroit, Mich.; Omaha, Nebr.; Fairfield, Ala.; Memphis, Tenn.; Laurel,

Miss.; Galesburg, Ill.; Kewaunee, Wis.; Twin City, Wis.; Decatur, Ill.; Jackson, Tenn.; Flint, Mich.; Union, Corinth, Deemer, Stringer, Winchester, Miss.

They were consigned to New Orleans, Bogalusa, La.; Houston, San Antonio, Tex.; Antwerp, Belgium; Angleton, Tex.; Osaka, Japan; Sandy Hook, Columbia, Miss.; Avonmouth, England; Melville, La.; Gretna, La., and several to steamship lines destined to Pacific coast points via the Panama Canal.

Sixty-three cars, carrying 17 commodities from 35 towns to 12 American and foreign towns.

General Reduction of Fares to the Pacific Coast

The Chicago & North Western and the Union Pacific, following the establishment of three classes of passenger rates from Chicago to California and from Chicago to the northwest by the Atchison, Topeka & Santa Fe and the Chicago, Milwaukee, St. Paul & Pacific for a period of six months beginning January 1, have expressed their intention of establishing corresponding rates over their lines. The first class rate to California and that to the northwest will continue as at present, \$79.84 and \$77.20, respectively, while the second class or tourist sleeping car rate to either destination will be \$65, and the third class or coach rate \$50.

By November 15 all carriers offering service to the west coast and those which participate in western travel had indicated their intention of adopting the same three classes of rates. The carriers not already mentioned include the Chicago, Rock Island & Pacific, the Southern Pacific, the Chicago, Burlington & Quincy, the Great Northern, the Northern Pacific, the Missouri Pacific, the Chicago Great Western, the Illinois Central, the Minneapolis, St. Paul & Sault Ste. Marie, the Canadian National and the Canadian Pacific.

Prior to the establishment of the three classes of rates, winter excursion rates from Chicago to California points at one fare plus 50 cents for the round trip are to be placed in effect between December 16 and 22 and again on December 26. They will be good until January 15. Besides Chicago, other points and intervening stations included in the low rate plan in December are St. Louis, Mo., New Orleans, La., Memphis, Tenn., Vicksburg, Miss., and points between Chicago and Colorado.

Hearings on Salt Rates

The Interstate Commerce Commission has issued a notice to the parties interested in Part 13 of its rate structure investigation, pertaining to rates on salt, stating that as the carriers have not yet introduced their entire general case, including all of their proposals for readjustment of the present rates, it has been deemed necessary to make some changes in the hearings already assigned. Accordingly these proceedings are reassigned for hearing before Commissioner Meyer and Examiner Hoy, on December 10 at Chicago, Ill. At this hearing the carriers

will be expected to introduce definite proposals for readjustment of the present rates, including interterritorial rates, unless such proposals have been already introduced in evidence. The carriers will also be expected to introduce all additional evidence to be offered in justification of their proposals for readjustment of the present rates and to complete their case on direct evidence, at this hearing. On January 12, at San Francisco, Cal., evidence will be received with respect to the rates within and to the territory west of southwestern and western trunk-line territories. At this hearing the various complaint cases assigned for hearing or further hearing with the general investigation will be heard or further heard. Evidence as to the paying and bearing of freight charges will be received at this hearing. On January 22, at Chicago, the hearings will be resumed for the introduction of evidence, including proposals for readjustment of the present rates, by all parties, other than the carriers, who did not introduce their evidence at the Buffalo, Kansas City, Dallas, Atlanta and San Francisco hearings. Cross-examination of the witnesses testifying at this hearing will be deferred until the February 25 hearing at Chicago. At this, the final hearing, cross-examination of witnesses appearing at the September 22, December 10, and January 22, hearings will take place. Following such cross-examination all parties may introduce rebuttal evidence. A proposed report will be issued.

Black Tom Disaster—Germany Exonerated

The Black Tom explosion of July 30, 1916, at Jersey City, N. J., which destroyed war munitions worth many millions of dollars and additional millions' worth of other merchandise, comes to

public notice once more in the announcement from the State Department at Washington (November 14) that the Mixed Claims Commission, adjudicating American claims against Germany growing out of the World War, has decided that the German government is guiltless. The decision covers also the explosion at Kingsland, N. J., and the total of American claims thus disallowed is about \$40,000,000.

Reviewing many volumes of testimony concerning police, spies, sabotage and persistent investigations, the commission finds itself not convinced that the fire was caused by any German agent. Two of the three commissioners are Americans.

This disaster, on which the Lehigh Valley Railroad has paid enormous sums in damage claims—about one million dollars going to the Russian government—occurred at two o'clock in the morning, in the freight terminal yard of that road at Black Tom island, so-called, in New York harbor. Loss of life was not large but scores of persons were injured. The property damage at Black Tom was estimated at the time at ten to twenty millions. The destruction included six piers, 13 large storehouses, 100 loaded freight cars and many barges. Hundreds of windows were broken in Manhattan, three miles away.

Will Reduce Time of Chicago-Havana Journey

Through a reduction of 40 min. in running time between Chicago and Jacksonville, Fla., and a rearrangement of the schedule of the Havana Special of the Florida East Coast from Jacksonville to Key West, the passenger time from Chicago to Havana, Cuba, will be reduced 12 hr. and 45 min. on January 1. Heretofore Chicago-Havana service

was handled on the Seminole of the Illinois Central and the Dixie Flyer of the Illinois Central in 63 hr. 20 min., the Floridian and the Dixie Limited not making connections with the Havana Special. When the Floridian and the Dixie Limited connect with the Havana Special, the time will be 50 hr. 35 min.

The 40 min. reduction in running time between Chicago and Jacksonville will be applied to the Floridian of the Illinois Central which will leave Chicago at 2:55 p. m. instead of 2:45 p. m. and which will arrive in Jacksonville at 9:00 p. m. instead of 9:30 p. m.; and the Dixie Limited of the Chicago & Eastern Illinois which will leave Chicago at 2:45 p. m. instead of 2:00 p. m. and which will arrive in Jacksonville at 8:50 p. m. instead of 8:45 p. m. The Havana Special will leave Jacksonville at 9:15 p. m. instead of 6:25 p. m. and will arrive in Key West at 11:15 a. m. instead of 7:40 a. m. From Key West a Peninsular & Occidental steamship will leave at 12 noon and arrive in Havana at 6:30 p. m. Returning the steamship leaves Havana at 10:00 a. m., and arrives in Key West at 4:30 p. m., while the Havana Special leaves Key West at 5:30 p. m. instead of 6:00 p. m. and arrives in Jacksonville at 7:15 a. m., as at present. The return schedules of the Dixie Limited of the C. & E. I. and the Floridian of the I. C. from Jacksonville to Chicago will not be changed.

Annual Meeting A.S.M.E.

The 1930 annual meeting of the American Society of Mechanical Engineers, which will be held at 29 West Thirty-Ninth street, New York, December 1 to 5, inclusive, will be featured by a series of three lectures on public speaking by Dr. S. Marion Tucker, head, Department of English, The Polytechnic Institute, Brooklyn, N. Y. Other unusual features will be an exhibition of art produced by engineers; a discussion between an economist and an engineer of the parts these two professions play in our present civilization, and a talk by Elliott Dunlap Smith of Yale University who will speak at the annual dinner on Wednesday evening, December 5, on the question "Can the Engineer Be a Man?" Dr. Tucker's lectures will be held at 8:30 a. m. in the auditorium of the Engineering Societies building on Tuesday, Wednesday and Thursday, December 2-4, and the technical sessions will follow at 9:30 a. m. Of particular interest to railroad officers will be the following:

Monday, December 1, 2 p. m.

Applied Mechanics (II)
Vibrations of Railway Bridges, J. N. Goodier
Symposium on Industrial Accident Prevention
Economic Aspects of Industrial Casualty Reductions, L. W. Wallace
Engineering Revision—An Essential Factor in Accident Prevention, L. W. Chaney
Management's Responsibility for Industrial Accidents, L. P. Alford

8:30 p. m.

Art and Industry Exhibit

Tuesday, December 2, 9:30 a. m.

Machine Shop Practice (I)
Survey of Surface Quality Standards and Tolerance Costs Based on 1929-1930 Precision-Grinding Practice, R. E. W. Harrison and appendix by C. B. Sawyer
Transmission of Torque by Means of Press and Shrink Fits, J. W. Baugher, Jr.



Members of the Board of Directors of the General Electric Company Were Guests of the Directors of the Delaware, Lackawanna & Western on a Recent Tour of Inspection of that Road's Newly Electrified Section. The Photograph Shows Directors and Officers of Both Companies Assembled at Montclair, N. J.

- Railroad (I)
 Progress Report of Railroad Division
 High-Pressure and High-Temperature Steam, C. F. Hirshfeld
 The Stug System of Pulverized Fuel Firing on Locomotives, R. Roosen
 Materials Handling (II)
 Progress Report of the Materials Handling Division (by title)
 Materials Handling in Warehouses, N. E. Whittemore
 2 p.m.
 Industrial Power
 Engineering Aspects of Interchange of Power with Industrial Plants, B. F. Wood
 Combined Heat and Power Supply in Industrial Plants, W. F. Ryan (Both represented from World Power Conference)
 Railroad (II)
 Research Relating to the Action of Four-Wheel Freight-Car Trucks, T. H. Symington
 Wednesday, December 3, 9:30 a.m.
 Stabilization of Employment in Industry
 Discussion to be led by Edwin S. Smith
 Fuels
 Progress Report of Fuels Division, T. A. Mangelsdorf
 Heat Absorption in Water-Cooled Furnaces, Wm. L. DeBaufre
 Radiant Heat Transmission Between Surfaces Separated by Non-Absorbing Media, H. C. Hottel
 General
 Machining Properties of Some Cold-Drawn Steels, O. W. Boston
 Frictional Resistance and Flexibility of Seamless Tube Fittings in Pipe Welding, Sabin Crocker and A. McCutchan
 2 p.m.
 Apprentice Training
 Apprentice Training in Virginia, C. F. Bailey
 Apprentice Training Movement in Wisconsin Industry, Harold S. Falk
 6:30 p.m.
 Annual dinner. Address by Elliott Dunlap Smith
 Thursday, December 4, 9:30 a.m.
 Management
 American Management in Europe, Wallace Clark
 Central Station Power (Steam)
 Operating Experience, Deepwater Station, K. M. Irwin
 Operation of the Holland Station, E. M. Gilbert
 Cutting Metals
 Tool Steel Tools, A. H. d'Arcambal
 Cemented Tungsten Carbide as Applied to Cutting Tools, L. J. St. Clair
 Stellite Cutting Tools, E. A. Becker, E. E. Gordon and W. A. Wissler
 2 p.m.
 Boiler Furnace Refractories
 Action of Slags on Firebrick and Boiler Furnace Settings, T. A. Klinefelter and E. P. Rexford
 Furnace Gas Compositions and Temperatures in Underfeed Stoker-Fired Boiler and Their Effect on Boiler Settings, Albert C. Pasini and Edward M. Sarraf
 Friday, December 5, 9:30 a.m.
 Lubrication Research
 On Problems in the Theory of Fluid-Film Lubrication, with an Experimental Method of Solution, Albert Kingsbury
 Lubrication Research Activities. Fifth Report of A. S. M. E. Special Research Committee on Lubrication
 Properties of Metals
 Comparative Physical Properties of Chromium-Nickel, Chromium-Manganese and Manganese Steels, C. L. Clark and A. E. White
 2 p.m.
 Mechanical Springs
 Elastic and Inelastic Behavior in Spring Materials. Progress Report No. 7 of A. S. M. E. Special Research Committee on Mechanical Springs, M. F. Sayre
 Design of a Conical Spring with Coils of a Uniform Slope. Progress Report to A. S. M. E. Special Research Committee on Mechanical Springs, Jos. B. Reynolds and O. B. Schier

Railway Pooling Plan is Proposed by M. W. Potter

(Continued from page 1103)

study of the transportation act seems to me to suggest that the act contemplates the exercise by the carriers of their right to pool, and that pooling is essential in order to make the act effective. I suggest concretely that the commission take steps to have an exhaustive study of pooling as a remedy, either by a member of the commission or by a member of its staff."

Equipment and Supplies

Locomotives

THE LITCHFIELD & MADISON has ordered two 2-8-2 type locomotives from the American Locomotive Works.

THE SOUTHERN PACIFIC plans to construct six locomotives in its own shops during 1931, using parts from Mallet type locomotives to construct type 0-8-0 switching locomotives.

Freight Cars

THE YOUNGSTOWN SHEET & TUBE COMPANY is inquiring for 20 or 40 gondola car bodies.

THE SEABOARD BY-PRODUCTS COKE COMPANY, Pittsburgh, Pa., is inquiring for prices on the repair of 248 hopper cars of 55 tons' capacity.

THE FRUIT GROWERS' EXPRESS has ordered 100 steel underframes for refrigerator cars from the Greenville Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of April 26.

THE MISSOURI PACIFIC is constructing 168 single-sheathed box car bodies of 40 tons' capacity and will equip them with old trucks in its shops at San Antonio, Tex. It is also constructing 625 gondola car bodies of 50 tons' capacity in its shops at DeSoto, Mo.

THE PACIFIC FRUIT EXPRESS has ordered 300 steel underframes for refrigerator cars from the Pacific Car & Foundry Company and 300 from the Western Pipe & Steel Company. Inquiry for this equipment was reported in the *Railway Age* of November 1.

Passenger Cars

THE WESTERN FRUIT EXPRESS has ordered 100 steel underframes for refrigerator cars, to be used in passenger train service, from the Seims-Stembel Car Company plant of the Standard Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of July 12.

Machinery and Tools

THE PENNSYLVANIA is taking bids on cranes and dredging equipment for a river-rail coal trans-shipment plant which is to be constructed at Conway yard, just west of Baden, Pa.

Iron and Steel

THE UNION PACIFIC is inquiring for 500 tons of structural steel for a viaduct in Omaha, Neb.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered 400 tons of

structural steel for a viaduct in Evanston, Ill., from the Worden Allen Company.

THE ERIE has placed orders for 41,748 tons of rail for its 1931 requirements. More than half of this will be of 130-lb. section. The order was divided among the following companies: Carnegie Steel Company, 21,698 tons; Illinois Steel Company, 9,650 tons; Bethlehem Steel Company, 7,200 tons; Inland Steel Company, 3,200 tons.

THE BALTIMORE & OHIO, reported in the *Railway Age* of November 1 as arranging for the purchase of 75,000 tons of steel rail for 1931 delivery, has divided the order among the following companies: Carnegie Steel Company, 46,000 tons, Illinois Steel Company, 5,500 tons, Bethlehem Steel Company, 19,000 tons and Inland Steel Company, 4,500 tons.

Signaling

Centralized Traffic Control on B. & O.

The Baltimore & Ohio has ordered from the Union Switch & Signal Company material for the installation of centralized traffic control and an automatic block system for the single track line between North Lima and Roachton, Ohio; Toledo division. The controlled territory, 56 miles long, includes 16 ends of passing tracks and five interlockings, at which the signals will be jointly controlled by towerman and dispatcher. The control machine, containing 57 levers, will be located at Deshler, which is approximately 24 miles from Roachton and 32 miles from North Lima. All passing tracks and interlockings within the entire territory will be controlled by the towerman at Deshler.

THE PRIVILEGE OF OCCUPYING SLEEPING CARS until half past eight in the morning, which has been in vogue at the South Station, Boston, for some time past, has been extended by the New York, New Haven & Hartford to New Haven, Hartford, Providence and Springfield. At New York the time limit remains 7:20 a.m. at the Grand Central and 7:30 a.m. at Pennsylvania station. There is an exception to the rule at Springfield and New Haven, where certain cars continue their journey.

THE NORTHERN PACIFIC has made arrangements with automobile rental agencies in San Francisco, Cal., Los Angeles, Seattle, Wash., Tacoma, Spokane and Portland, Oregon, whereby a passenger when he purchases his ticket may designate the type of automobile he desires for use while in the west and have the car available when he arrives at his destination. Under the plan the passenger will know before he boards the train the exact cost for having the automobile for his exclusive use for any stated period.

Supply Trade

A. E. Biddle has been appointed executive vice-president of the **Universal Draft Gear Attachment Company**, with headquarters at Chicago.

The Keystone Steel & Wire Company, Peoria, Ill., plans the construction of a one-story addition to its plant in that city to increase its storage and distributing facilities. The cost is \$100,000.

J. J. Lynch, chief estimator of the Cleveland district of the **Austin Company**, has been appointed manager of the new Canadian branch, known as the Ontario district, with headquarters in Toronto, Ont.

G. S. Turner, president of the **T-Z Railway Equipment Company**, Chicago, has also been elected president of the **Morris B. Brewster Company**, which has moved its offices to 14 East Jackson boulevard, Chicago.

P. N. Guthrie, Jr., vice-president in charge of sales of the **Reading Iron Company**, has been elected president to succeed **Leon E. Thomas**, who resigned as president in July of this year; since that time **A. J. Maloney**, chairman of the board, has performed the executive duties of president, which are now to be turned over to Mr. Guthrie.

The National Aluminate Corporation of Chicago has purchased the chemical products business of the **Paige & Jones Chemical Company**, N. Y., and will operate this company as a division of the National Aluminate Corporation under the name of the **Paige-Jones Chemical Company**. The executive offices of the latter company will be at 6216 West Sixty-sixth place, Chicago.

J. E. Harrall has been appointed sales representative to the light and power industry in the district which centers around Philadelphia, Pa., of the **Okonite Company**, Passaic, N. J. Mr. Harrall was graduated from Clemson, (South Carolina) A. & M. College as an electrical engineer. In 1903 he served on the engineering staff of the United Railways & Electric Company, Baltimore, Md., and subsequently with the George Construction Company as vice-president; then as assistant sales manager of the U. G. I. Contracting Company, Philadelphia, until he became associated with the United Engineers & Contractors, Inc., Philadelphia. He was then for one year to July, 1930, district sales manager of the Safety Cable Company, division of General Cable Corporation, at Philadelphia.

Dr. Victor O. Homerberg has been appointed technical director of the **Nitralloy Corporation**, New York, which company controls, through assignment by Aubert & Duval, Freres, Paris, France, the United States patents issued to Dr. Adolph Fry of the Friedrich Krupp Aktiengesellschaft, Essen, Germany, and

many other patents and applications relating to the production of steels destined for nitriding and the art of nitriding. Dr. Homerberg is associate professor of physical metallurgy at the Massachusetts Institute of Technology, at which institute he received his bachelor of science degree in chemical engineering and doctor of science degree



Dr. Victor O. Homerberg

in metallurgy. He is the author and co-author of articles pertaining to physical metallurgy or metallography and co-author of the text book *Principles of Metallography*. He has been consulting metallurgist for a number of manufacturing concerns and engaged in research pertaining to the nitriding process. He is chairman of the publications committee and of the sub-committee on nitriding of the American Society for Steel Treating.

Obituary

Edward Conrad Waldvogel, a director and vice-president of the Yale & Towne Manufacturing Company, Stamford, Conn., died at his home in New Rochelle, N. Y., on November 13. Mr. Waldvogel was born at Toledo, Ohio, and entered the Yale service in 1905 as a traveling salesman. In 1910 he was transferred to New York as assistant to the general manager and in 1912 he was appointed assistant general manager. He succeeded Walter C. Allen, the present president of the company, as general manager in 1916. In March, 1920, Mr. Waldvogel was elected a director of the Yale & Towne Manufacturing Company, and on March 8, 1923, he was appointed vice-president with the division of sales as his particular directive work. Mr. Waldvogel retired from active directive service on April 1, 1930, but still remained as a director and vice-president.

Trade Publication

THE CLEANING OF METAL.—Processes for the cleaning of metals, with practical suggestions for their use, are described by Robert W. Mitchell, Ph. D., in a 76-page illustrated booklet issued by the Magnus Chemical Company, Garwood, N. J. The name and address of this company were incorrectly given in the Trade Publications item published in the November 8 issue.

Construction

BALTIMORE & OHIO.—In connection with its general program of track and signal improvements between Wheeling, W. Va., and Pittsburgh, Pa., described in the *Railway Age* of November 15, page 1061, this company has awarded to the T. J. Foley Company of Pittsburgh contracts for the construction of second track, revision of main track and extension of passing sidings at two different locations between Bridge No. 74, Hayes borough, and West Alexander, Pa. A contract has also been let to the Pittsburgh-Des Moines Steel Company, Pittsburgh, for the construction of a water-treating plant at Indianapolis, Ind.

CANADIAN NATIONAL.—A contract for the construction of 16 buildings, including stations and other structures on the Hamlin (Sask.)-Glenbush branch has been awarded to Theodore Bockstael, St. Boniface, Man. A contract for the construction of similar buildings on the Melfort (Sask.)-Aberdeen branch has been let to William C. Wells, Wilkie, Sask.

ERIE.—The Public Utility Commissioners of New Jersey have approved a proposed agreement between this road and the authorities of Bergen County for the elimination of the grade crossing at Edgewater avenue, Ridgefield.

LOS ANGELES & SALT LAKE.—A contract for the construction of a reinforced concrete and steel warehouse, with cold storage facilities, at Los Angeles, Cal., has been awarded to the J. V. McNeil Company, Los Angeles. The total cost of the structure, which will be seven stories in height with outside dimensions of 100 ft. by 620 ft., will be about \$3,500,000.

PENNSYLVANIA.—A river-rail coal transshipment plant, the first of its kind to be provided by the Pennsylvania on the Ohio river, is soon to be constructed near the east end of Conway yard, just west of Baden, Pa., 20 miles from Pittsburgh, Pa., on the main line from Pittsburgh to Great Lake ports. Authority for the required expenditure of approximately \$350,000 has been given by the board of directors, and contracts for the crane and necessary dredging will be let in the near future by the Pennsylvania through the office of W. D. Wiggins, chief engineer, Pittsburgh. The transshipment facility is planned to be a duplicate of one being regularly used by the Island Creek Coal Company at Cincinnati, Ohio, and will be very similar to other such installations made on the rivers of western Pennsylvania by Pittsburgh industries, notably by the Carnegie Steel Company at Clairton. The Pennsylvania's proposed plant is scheduled to handle 3,200 tons of coal from barges to railroad cars each eight-hour trick and about 1,000,000 tons annually. It is believed that all this coal, originating at river mines, will be barged to the new transshipment plant and there transferred to cars for movement by rail

to industries in or near Youngstown, Ohio.

PORT OF NEW YORK AUTHORITY.—Bids will be received by the Port of New York Authority on or about December 12 for the first contract in connection with the construction of New York's first union inland freight station. This contract will cover the demolition of the buildings which now occupy the site selected for the 14-story station, and will be awarded before the end of the year in order to relieve the unemployment situation. To assist further in unemployment relief the contract will specify that the block must be cleared within 60 days, which will necessitate the hiring of a larger force of unskilled labor than would otherwise be necessary, while the contract for excavation and foundation work will be let as soon as possible after the demolition work is under way, in order that there may be no period of idleness following the razing of the present buildings. In announcing that work would be started somewhat earlier than had been originally planned, Commissioner Howard S. Cullman, chairman of the inland terminal committee, made the following statement:

The Port Authority has been anxious for a long time to start actual construction of the new inland freight station, and we have reached the point where the clearing of the site can be undertaken by January 1. We will ask for bids for the demolition contract December 12, by which time we expect to be in possession of all of the property on the block bounded by Eighth and Ninth avenues, West Fifteenth and West Sixteenth streets. We already have acquired more than 90 per cent of the site and have found it possible to discontinue some of the condemnation proceedings which we have instituted.

The date for the awarding of the demolition contract has been brought forward as a contribution to the movement to provide labor for the unemployed. The contractor will be required to complete the work within 60 days. Several hundred men will be employed under the first contract and for the entire year of 1931, the number will run into the thousands in varied trades.

As soon as the buildings on the site have been razed, the contractor for the excavation and foundation will take hold. It is our intention to award the foundation contract in ample time to make this possible.

The terminal will be used by all of the railroads in the port district for the delivery and receipt of less-than-carload freight, and will represent an estimated investment of \$16,000,000, including the real estate. It therefore can be seen that construction of this building will be of importance to the labor interests of the City, as well as filling its primary purpose of helping the freight handling situation at the Port of New York. In cubical capacity, I understand that this building will be the biggest ever erected on Manhattan.

Specifications for the demolition have been so drafted that there will be no dumping or handling of debris across any sidewalks or into neighboring streets, as the wrecking will take place from the interior of the block rather than the exterior.

PORT TERMINAL RAILROAD ASSOCIATION.—A contract has been awarded to the Lone Star Construction Company, Houston, Tex., for the construction of a 7.76-mile extension of this railroad at Houston to serve the north side of the ship channel.

TERMINAL RAILROAD ASSOCIATION.—The Illinois Commerce Commission has ordered this road and the St. Louis Electrical Terminal to construct a grade separation structure at the intersection of their tracks and Broadway at Venice, Ill.

Financial

ALGERS, WINSLOW & WESTERN.—*Securities.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell \$250,000 of first mortgage 6 per cent bonds, to issue \$252,000 of general mortgage 6 per cent sinking fund bonds and to issue 5,000 shares of no par common stock for the purpose of financing the construction of a proposed extension.

ATCHISON, TOPEKA & SANTA FE.—*Construction and Trackage Rights.*—The Interstate Commerce Commission has issued a supplementary order to its decision of April 28, which latter authorized the construction by the Panhandle & Santa Fe of a line from Amarillo, Tex., to the Texas-Oklahoma State line. The original application also sought authority to extend a branch line from Spearman to a connection with the new line at Dumas, approximately 50 miles. This latter feature was opposed by the Rock Island and decision was deferred in order that the carriers might effect an agreement under which the applicant would construct an extension from Spearman to Morse, approximately 20 miles, and operate under trackage rights over the proposed Dalhart-Morse line of the Rock Island between Morse and a point on the applicant's proposed line north of Amarillo. Satisfactory trackage agreements have now been entered by the two carriers involved and thus this supplementary order permits the necessary construction on the Panhandle & Santa Fe Spearman branch.

BALTIMORE & OHIO.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a branch line extending from Flatwoods, W. Va., to Sutton, 5.6 miles.

CHARLESTON & WESTERN CAROLINA.—*Bonds.*—The Interstate Commerce Commission has authorized this company to procure the certification and delivery of \$151,226 of its first and consolidated mortgage, series B, 50-year coupon bonds in reimbursement of its treasury for capital expenditures.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to nominally issue \$457,000 of first and general mortgage 5 per cent bonds, to be pledged and replaced as security for short-term notes.

CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—*Extra Dividend.*—In addition to the regular quarterly dividend of 1.25 per cent on the preferred stock and the semi-annual dividend of 4 per cent on common stock, the directors of this company on November 18 declared an extra dividend of 50 per cent on the common.

MOBILE & OHIO.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell \$5,000,000 of serial gold notes

and to issue and pledge \$6,000,000 of re-funding and improvement mortgage 5 per cent bonds.

NEW YORK CENTRAL.—*Unification Case.*—The Interstate Commerce Commission has announced a hearing to be held on December 3 before Commissioner Meyer and Examiner Walsh for the purpose of receiving evidence in addition to that which was considered by the arbitration board selected to determine the commercial value of the Boyne City, Gaylord & Alpena, one of the short lines which the commission ordered the New York Central to offer to acquire as a condition of its authorization of the lease of the Michigan Central and Big Four. After a majority of the board had reported a finding as to the commercial value the New York Central filed objections to the finding and requested the commission to proceed itself to determine the commercial value.

NEW YORK, ONTARIO & WESTERN.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue \$3,370,000 of general mortgage bonds to be pledged as collateral security for short term notes.

OSAGE COUNTY & SANTA FE.—*Bond.*—This company has applied to the Interstate Commerce Commission for authority to issue one first mortgage bond for \$1,800,000, to be delivered to the Atchison, Topeka & Santa Fe in payment for indebtedness.

PITTSBURGH & WEST VIRGINIA.—*Notes.*—The Interstate Commerce Commission has authorized this company to issue \$4,000,000 of short term 4.5 per cent notes in connection with the construction of its Connellsville and Donora extensions.

WESTERN MARYLAND.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon part of a branch line from Bellington to Weaver, W. Va., three miles.

Average Prices of Stocks and of Bonds

	Nov. 18	Last week	Last year
Average price of 20 representative railway stocks..	91.94	89.37	125.15
Average price of 20 representative railway bonds..	93.34	93.57	91.11

Dividends Declared

Canadian Pacific.—New Common, initial, \$.62½, quarterly, payable December 31 to holders of record December 1.

Chicago, Rock Island & Pacific.—Common, \$1.75, quarterly; 7 Per Cent Preferred, \$3.50, semi-annually; 6 Per Cent Preferred, \$3.00, semi-annually; all payable December 31 to holders of record December 5.

Chicago & North Western.—Common, \$.25; Preferred, \$1.75, quarterly, both payable December 31 to holders of record December 1.

North Pennsylvania.—\$1.00, quarterly, payable November 25 to holders of record November 17.

Pittsburgh, Youngstown & Ashtabula.—Preferred, \$1.75, quarterly, payable December 1 to holders of record November 20.

St. Louis-San Francisco.—Common, 2 per cent, quarterly, payable January 2 to holders of record December 1; 6 Per Cent Preferred, four quarterly dividends of \$1.50 each, payable February 2, May 1, August 1 and November 2 to holders of record January 2, May 12, July 1 and October 1, respectively.

Texas & Pacific.—Common, 1¼ per cent, quarterly, payable December 31 to holders of record December 15.

Union Pacific.—Common, 2½ per cent, payable January 2 to holders of record December 1.

Railway Officers

Executive

John W. Rea, general superintendent of the Eastern district of the Missouri Pacific, with headquarters at St. Louis, Mo., has been appointed executive assistant, with headquarters at Little Rock, Ark.

Financial, Legal and Accounting

George W. Hesslau has been appointed assistant general claim agent of the Baltimore & Ohio at Youngstown, Ohio, and **Paul C. Garrott** has been appointed to a similar position at Baltimore, Md. **Robert B. Banks** has been assigned to serve as assistant to general claim agent at Baltimore, Md.

Charles F. Groves, who was recently appointed treasurer, in addition to his duties as secretary, of the Central of Georgia, Wrightsville & Tennille Wadley Southern, Louisville & Wadley and the Sylvania Central, as announced in *Railway Age*, of November 1, page 965, was born on January 1, 1877, at Blackville, S. C. Mr. Groves was educated in the public and private schools at Blackville, and at St. Mary's High School, now Belmont Abbey College, Belmont, N. C. He entered railroad service in October, 1892, with the Central of Georgia, as clerk in the office of the trainmaster at Griffin, Ga. He served as secretary to the division superintendent at Macon, Ga., from 1894 to 1898, and from 1898 to 1902 he was



Charles F. Groves

chief clerk to the trainmaster at Savannah, Ga. From 1902 to 1904, he was secretary to the president and from 1904 to 1907 chief clerk to the superintendent of transportation. In 1907, he was appointed inspector of yards and train service and from 1907 to 1912 he was car accountant. In June, 1912, he was appointed secretary, the position he now holds in addition to serving as treasurer.

Operating

H. A. Wright has been appointed superintendent of the Northern division of the Colorado & Wyoming at Sunrise, Wyo.

J. G. Rohlman has been appointed superintendent on the Wabash at Buffalo, N. Y., succeeding **L. J. Ferritor**, who was appointed special representative at that point on November 17.

The headquarters of **J. B. Hughey**, superintendent of sleeping and parlor cars of the Illinois Terminal System, have been removed from Springfield, Ill., to St. Louis, Mo.

R. H. Tuttle, who was granted a leave of absence from the Atchison, Topeka & Santa Fe on May 20, resumed his duties as superintendent of the Los Angeles division of that road, with headquarters at San Bernardino, Cal., on November 20.

H. S. Parrish has been appointed superintendent of transportation of the Wheeling & Lake Erie and the Lorain & West Virginia at Brewster, Ohio, and the office of superintendent at Brewster, which position Mr. Parrish formerly held, is abolished.

H. J. Main, superintendent of the Moose Jaw division of the Canadian Pacific at Moose Jaw, Sask., has been transferred to the Saskatoon division at Saskatoon, Sask. **J. A. Macgregor**, superintendent of the Saskatoon division, has been transferred to the Moose Jaw division.

Frederick N. Melius has been elected president of the United States Freight Company and the Universal Carloading & Distributing Company, a subsidiary. He was formerly assistant general manager of the New York Terminal district of the New York Central. A photograph of Mr. Melius, together with a sketch of his railway career, appeared in *Railway Age* of February 15, page 458.

Effective October 1, the Charleston division of the Baltimore & Ohio was combined with the Monongah division, and **H. R. Gibson** was appointed superintendent of the new division. Other changes resulting from this consolidation are as follows: **W. Trapnell** has been appointed assistant superintendent at Weston, W. Va.; **W. C. Deegan**, trainmaster, Grafton, W. Va.; **J. C. Kinton**, trainmaster, Gassaway, W. Va.; **A. F. McWilliams**, assistant trainmaster, Clarksburg, W. Va., and **C. F. Theis**, assistant trainmaster, Fairmont, W. Va.

C. H. English, superintendent of the Central division of the Central Railroad of New Jersey, has, at his own request, been appointed superintendent telegraph and telephone, succeeding the late **C. H. Gaffaney**. **R. V. Reamer**, superintendent

of the Lehigh and Susquehanna divisions will succeed Mr. English as superintendent of the Central division. **A. R. Young**, assistant superintendent of the Central division, has been promoted to superintendent of the Lehigh and Susquehanna divisions. **R. F. Dickerson**, terminal trainmaster, has been promoted to assistant superintendent, Central division. **G. W. DeGraff**, freight trainmaster, has been appointed terminal trainmaster. **C. C. Lloyd**, trainmaster New Jersey Southern division and New York & Long Branch, has been appointed freight trainmaster, Central division. **D. R. McCarthy**, assistant trainmaster, Central division, has been appointed trainmaster, succeeding Mr. Lloyd, and **C. H. Fritts**, assistant terminal trainmaster, has been appointed assistant trainmaster, Elizabeth to Raritan and branches.

Chester A. Johnston, who has been promoted to superintendent of the Detroit division of the Wabash, with headquarters at Montpelier, Ohio, has been engaged in railway engineering for 13 years. He was born at Logansport, Ind., on September 1, 1895, and received his college training at Purdue University and the University of Arizona. His first railroad service was with the Pennsylvania as an instrumentman and assistant on engineer corps on the Louisville division at Louisville, Ky., in June, 1917. In February, 1920, he was transferred to the Indianapolis division at Indianapolis, Ind., and later to the St. Louis division at Terre Haute, Ind. Mr. Johnston entered the service of the Wabash as an assistant engineer on the Decatur division at Decatur, Ill., in May, 1924, where he remained until August, 1926, when he was advanced to resident engineer in charge of second track construction at Adrian, Mich. Just a year later he became track supervisor on the Chicago Terminal division of the Wabash, being promoted to division engineer at Montpelier in February, 1929. His promotion to superintendent of the Detroit division became effective on October 27.

Traffic

J. A. Boyce, Jr., has been appointed district freight agent of the Baltimore & Ohio at Toledo, Ohio.

W. E. Alderson, division freight agent on the Wabash at Kansas City, Mo., has been promoted to assistant general freight agent at that point, succeeding **R. W. Owens**, who at his own request has been appointed special traffic representative at Kansas City.

Engineering, Maintenance of Way and Signaling

J. P. Muller has been appointed signal construction engineer of the Boston & Maine, with headquarters at Boston, Mass.

H. G. Holloway, assistant engineer on the Wabash at Springfield, Ill., has been

promoted to division engineer of the Detroit and the Detroit Terminal divisions, with headquarters at Montpelier, Ohio.

H. A. Appelby, chief draftsman in the office of the signal engineer of the Western lines of the Atchison, Topeka & Santa Fe, has been promoted to assistant signal engineer of those lines, with headquarters as before at Amarillo, Tex., succeeding **D. K. Crawford**, deceased.

J. Edwards was appointed division engineer of the Monongah division of the Baltimore & Ohio, effective October 1, when the Charleston division was combined with the Monongah division. His headquarters will be located at Grafton, W. Va.

Arthur B. Stone, who was recently appointed bridge engineer of the Norfolk & Western at Roanoke, Va., succeeding **L. L. Kelly**, deceased, was born on August 21, 1890, at Roanoke. Previous to entering the railroad field Mr. Stone was employed as draftsman for various industrial companies. He commenced his railroad career with the Norfolk & Western in July, 1912, as draftsman and subsequently served as designer of steel and concrete structures. He was promoted to chief structural draftsman in February, 1929, in which capacity he served until his recent promotion to the position of bridge engineer.

Mechanical

The jurisdiction of **F. R. Clapp**, master mechanic of the Minnesota division of the Minneapolis, St. Paul and Sault Ste. Marie, at Enderlin, N. D., has been extended to include the Missouri River division, replacing **F. M. Roberts**, who was located at Bismarck, N. D., and who has been assigned to other duties.

R. H. Cline has been appointed master mechanic of the Monongah division of the Baltimore & Ohio, with headquarters at Grafton, W. Va., and **F. E. Cooper** has been appointed assistant master mechanic at Gassaway, W. Va. These appointments became effective October 1, when the Charleston division was absorbed by the Monongah division.

William Gouge, passenger car foreman in the Central region of the Canadian National at Toronto, Ont., has been promoted to superintendent of shops at Leaside, Ont., succeeding **Otis Grant**, deceased. **A. Saunders** has been appointed master mechanic of the Hornepayne division at Hornepayne, Ont., succeeding **W. A. McCarthy**, deceased.

George W. Imgrund, master mechanic of the Chicago & Illinois Midland, has been promoted to superintendent of motive power and equipment with headquarters as before at Taylorville, Ill., following the consolidation of the locomotive and car departments of that railroad. Mr. Imgrund was born on February 18, 1883, at Springfield, Ill., and entered railway service at the age of 13

years as a machinist apprentice on the Wabash. Four years later, when he completed his apprenticeship on the Wabash, he became a machinist for a manufacturer at Springfield, re-entering railway service in 1902 as a machinist on the Baltimore & Ohio at Newark, Ohio. From December, 1902, until February, 1927, he served successively as roundhouse foreman on the Baltimore & Ohio



George W. Imgrund

at Lorraine, Ohio, and New Castle, Pa., as mechanical inspector on the Lake Shore & Michigan Southern (now a part of the New York Central), as a machinist on the Wabash, as erecting foreman at Springfield, and a roundhouse foreman at Chicago and Decatur, Ill., as general foreman of the locomotive and car departments and as master mechanic of the Chicago, Peoria & St. Louis at Jacksonsville, Ill. On February 1, 1927, Mr. Imgrund was appointed master mechanic of the Chicago & Illinois Midland, which position he held until his promotion to superintendent of motive power and equipment on November 14.

Purchases and Stores

The headquarters of **L. C. Rose**, purchasing agent of the Colorado & Wyoming, have been removed from Denver, Colo., to Pueblo.

Obituary

William Smith, Jr., assistant general freight agent on the Illinois Central at St. Louis, Mo., died in that city on November 13.

Arthur T. Allen, coal freight agent of the Chicago & Eastern Illinois, with headquarters at Chicago, died at the West Suburban hospital in that city on November 17 from heart disease.

Edgar Van Etten, former vice-president of the New York Central & Hudson River (now the New York Central), in charge of the Boston & Albany, and in more recent years vice-president of the Chesapeake Western, died at Sacramento, Cal., on November 18 at the age of 87 years.

Frederick M. Hubbell, for nearly 40 years an officer of various short line railroads in central Iowa, died at his home at Des Moines, Iowa, on November 11. Mr. Hubbell was president of the Des Moines & North Western from 1887 until its acquisition by the Chicago, Milwaukee & St. Paul in 1894, secretary of the Des Moines Union from 1886 to 1921 and president of Des Moines Western from 1902 to 1925.

Oliver P. Reese, general superintendent of the Southwestern division of the Pennsylvania, with headquarters at Indianapolis, Ind., died at his home in that city on November 14, from a heart attack. Mr. Reese was stricken while on an outing with a number of Pennsylvania officers near Indianapolis. A sketch of his railway career together with a reproduction of his photograph appeared in *Railway Age* on June 29, 1929, page 1622, at the time of his promotion to general superintendent of the Southwestern division.

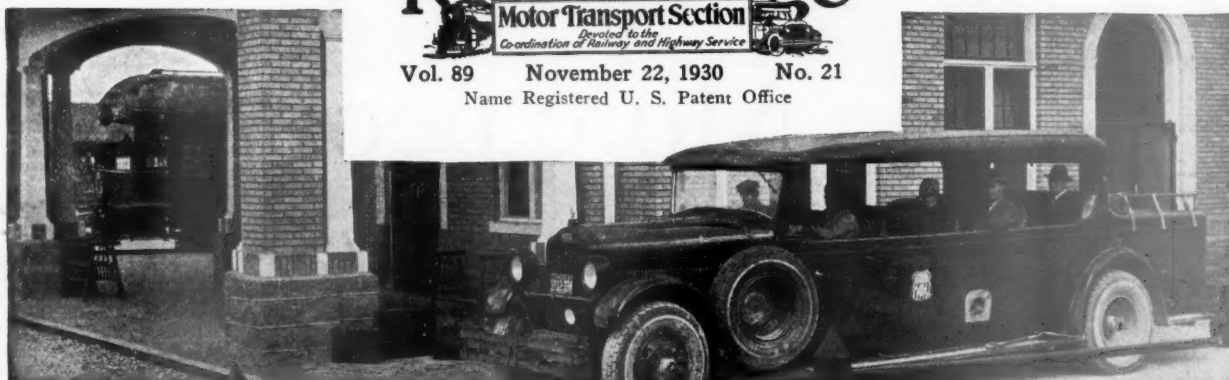
L. L. Kelly, bridge engineer of the Norfolk & Western at Roanoke, Va., died suddenly on October 29, from a heart attack. He was born at Saltville, Va., in April, 1883, and received his higher education at the Virginia Polytechnic Institute, from which he was graduated in 1904. He entered railroad service with the Norfolk & Western in October, 1905, as draftsman in the office of the bridge engineer at Roanoke, Va. In September, 1912, he was transferred to Norfolk, Va., as resident engineer in connection with the construction of Coal Pier No. 4 at Lambert Point, Va. In October, 1916, he was promoted to assistant engineer at Norfolk, and in February, 1923, he was transferred to Roanoke as acting bridge engineer. Mr. Kelly was promoted to bridge engineer in January, 1924, and continued in this capacity until his death.

William R. Shelby, who retired in 1912 as vice-president and treasurer of the Grand Rapids & Indiana (now a part of the Pennsylvania), with headquarters at Grand Rapids, Mich., died at a hospital in that city on November 14 at the age of 87 years. Mr. Shelby, who was a native of Kentucky and a graduate of Center College, had been engaged in railway work for 43 years. He entered railway service in 1869 as secretary and treasurer of the Continental Improvement Company, operating the Grand Rapids & Indiana, the Cincinnati, Richmond & Fort Wayne, the Michigan Lake Shore and the Traverse City (all now parts of the Pennsylvania). From 1870 to 1873 he was also secretary and treasurer of the Southern Railway Security Company, operating the East Tennessee, Virginia & Georgia and the Memphis & Charleston (now parts of the Southern). From 1877 to 1912 Mr. Shelby was vice-president and treasurer of the Grand Rapids & Indiana, also serving as purchasing agent until 1896, and as president of a number of small roads which are now a part of the Pennsylvania from 1896 to 1912.

Railway Age

Motor Transport Section
Devoted to the
Coordination of Railway and Highway Service

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Associate Editor

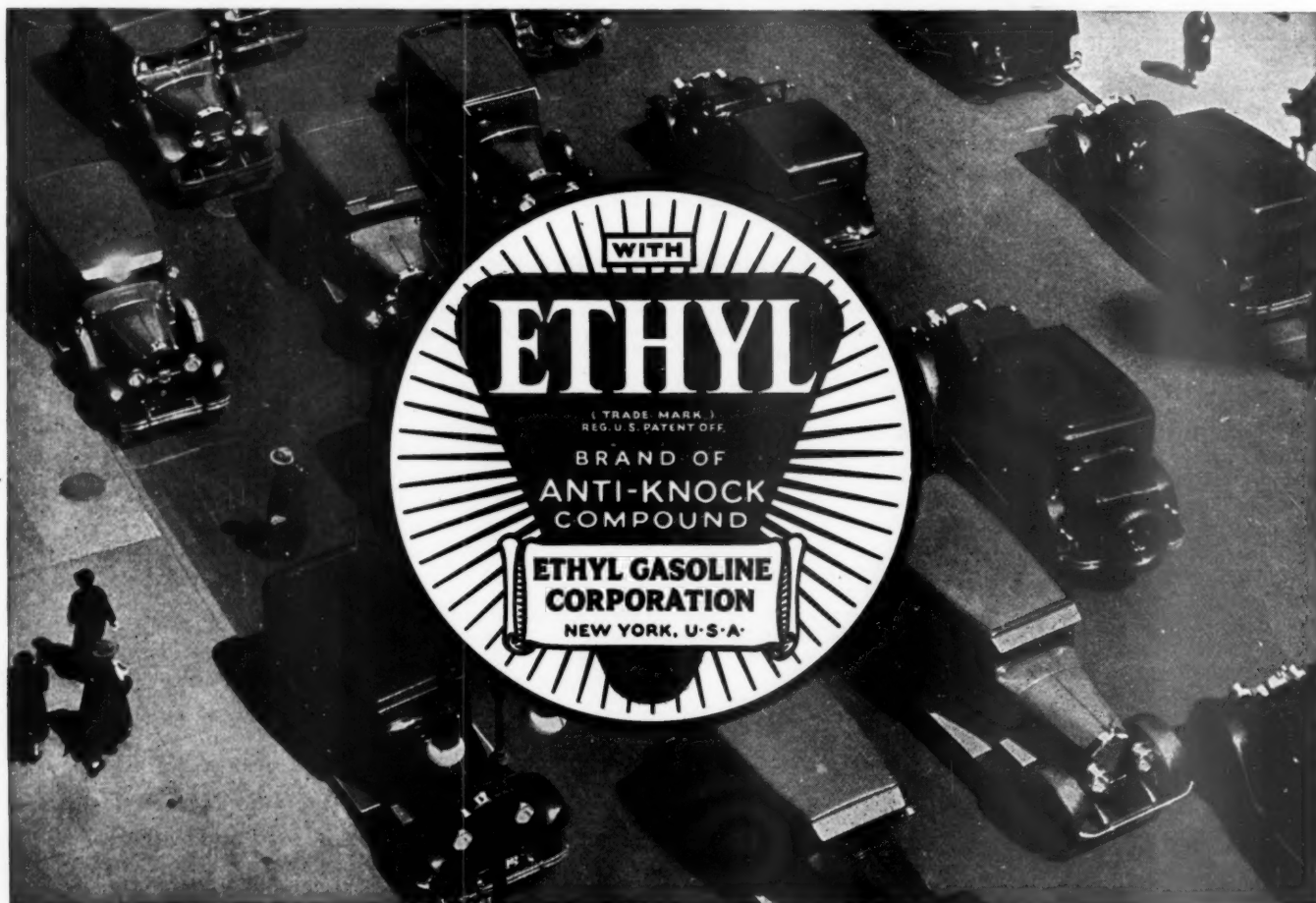
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Motor Transport Editor

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Associate Editor

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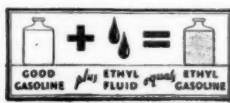
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ETHYL GASOLINE

The Motor Transport Problem

RAILWAY officers all over the country will do well to study carefully the proceedings of the Motor Transport Division of the American Railway Association at its meeting in Chicago last week. For three days, executive, operating and traffic officers of a substantial majority of the leading railways in the United States and Canada discussed exhaustively and constructively one of the most pressing problems which the railways are facing—that arising from the increasing availability and use of motor vehicles as a medium of transportation.

Certain points made at the meeting are worthy of particular emphasis. One such point had to do with the rail motor car, and the point made was that this unit of transportation has as yet been only partly developed as a hauler and carrier which the railways can use to substantial advantage.

Motor Coaches and Rate Reductions

Several points of special significance had to do with motor coach transportation, and the passenger traffic situation. That the private automobile has been the real cause of the railways' loss of passenger traffic has been generally recognized for some time, but that the private automobile is proving to be an equally successful competitor of the motor coach has not been so generally recognized. The motor coach lines, too, are losing short-haul passenger traffic and as a result are being forced to fall back upon an intensive development of long-haul passenger business. As was to be expected, there was a great diversity of opinion on the question of whether or not the railways should reduce their rates for day coach transportation. Advocates of such action considered it the only means of retrieving the railways' lost long-haul passenger business, and of attracting to railway trains the substantial and growing volume of low-class passenger traffic which has been created in recent years by the low level of motor coach fares. Opponents of railway rate reduction held that the only justification for a reduction in day coach rates would be a strong likelihood of increased gross revenues, and that such increases are not to be expected since the volume of all traffic now handled by both trains and motor coaches would bring

less revenue at two cents per mile than the present volume of railway traffic alone brings in at the rate of 3.6 cents per mile.

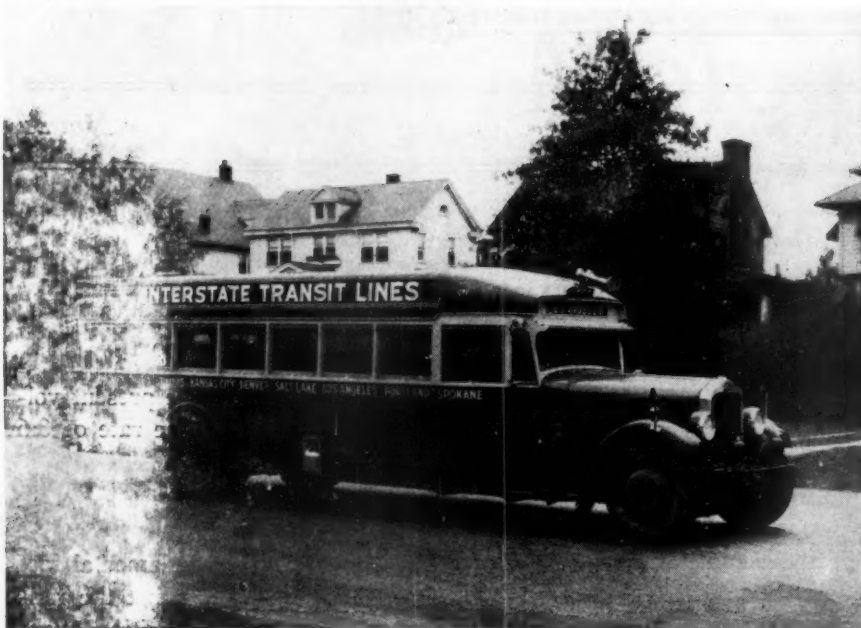
Meeting Truck Competition

With respect to the motor truck, the fundamental fact most worthy of being pounded home was that the railways, in order to meet motor truck competition, must render the same or better service than that of their highway competitors. It was stated most emphatically that half-way measures will be ineffective; that every attractive feature offered to shippers by independent motor truck lines must be duplicated or improved upon by the railways, if the loss of freight traffic to the highways is to be stemmed.

The Motor Transport Division is definitely on top of its job of helping the railways to solve the motor transport problem. Its officers and committees have visualized the problem accurately, and are proceeding by the most direct course toward its solution. The work of the Motor Transport Division will be of value to the railways, however, only to the extent to which the railways choose to take advantage of the reports and recommendations of the division, and to the extent that all of the railways participate in the work of the division. It is suggested that the Motor Transport Division be allowed to make the scope of its work as wide as possible. There are many angles to the motor transport problem, and the Motor Transport Division should be free to deal with any and all of them.

Moreover, while its meetings have, all things considered, been well attended, nevertheless, it must be remembered that the field the Division covers has to do with the most serious problem the railways have to face. If all railway officers who could profit from the common counsel which this Division affords on ways and means of meeting this problem were to attend its sessions, it is safe to say that the roll of attendance would increase many fold. The railways have in the Division a most valuable agency to foster a speedy solution to their most acute problem. This agency should be utilized and supported, to the full.

Motor Transport Division



Ways of using motor coaches, true service, bring about greater efficiency, petition discussed in the number of traffic

second day when the motor coach section had the floor. The proposal to reduce the rates for transportation in railway day coaches was argued pro and con at great length, with the opinions expressed divergent in the extreme.

It was decided to hold the next meeting of the division in Chicago on June 9-11, and to hold the annual meeting in November of next year at Richmond, Va. The general committee members and the regional committee chairman will meet in Chicago during February to prepare for the June meeting, and will meet in Chicago in September to prepare for the Richmond meeting.

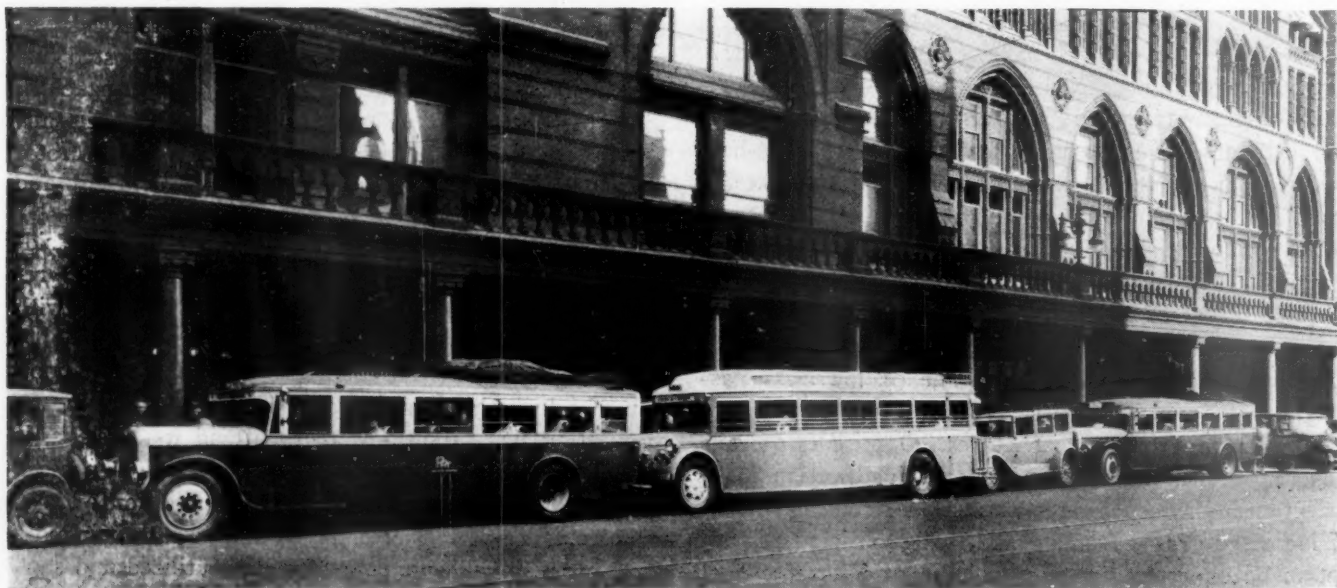
A. P. Russell, executive vice-president of the New York, New Haven & Hartford, and chairman of the Motor Transport Division, presided at the opening session.

Report of General Committee

Mr. Russell submitted the report of the general committee, which was largely a statement of matters which were discussed at the meeting of the general committee in Chicago last September. The report touched upon the Parker-Couzens Bill, which will come up for consideration in the forthcoming short session of Congress and which provides for the regulation of interstate motor coach lines; the Interstate Commerce Commission in-

WITH an excellent attendance—107 representatives of 73 roads—notable particularly for the large number of traffic officers present, the Motor Transport Division of the American Railway Association held its third annual meeting in Chicago on November 11-13. The three-day program was marked by the presentation and active discussion of papers and reports on a wide variety of subjects but all of which were concerned with the problems of utilization of motor equipment, its co-ordination with railway service, and means of meeting motor vehicle competition.

Particularly animated was the discussion of the loss of passenger business by the railways. This subject came to the fore not only on the first day when the rail motor car section presented its program, but also on the



Broad Street Station, Philadelphia, Showing Coaches Operated by Pennsylvania Subsidiaries

ion Holds Meeting in Chicago

es, truck and rail motor cars to improve railway
efficient operation, and meet highway com-
in the session — Unusual
of traffic officers in attendance

investigation of the co-ordination of railway and motor transportation; the increasingly keen competition of truck lines for freight, and the desirability of regulation of the rates and service of these lines; and activities with respect to rate reductions in passenger transportation, both on the part of motor coach lines and on the part of certain railways.

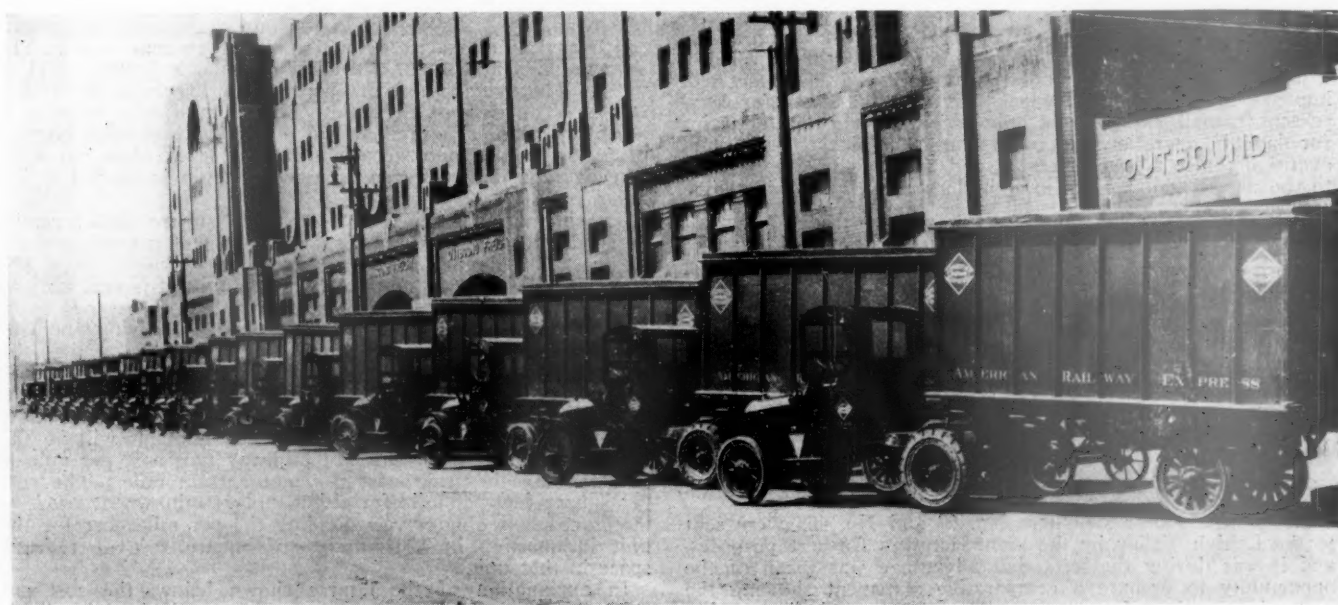
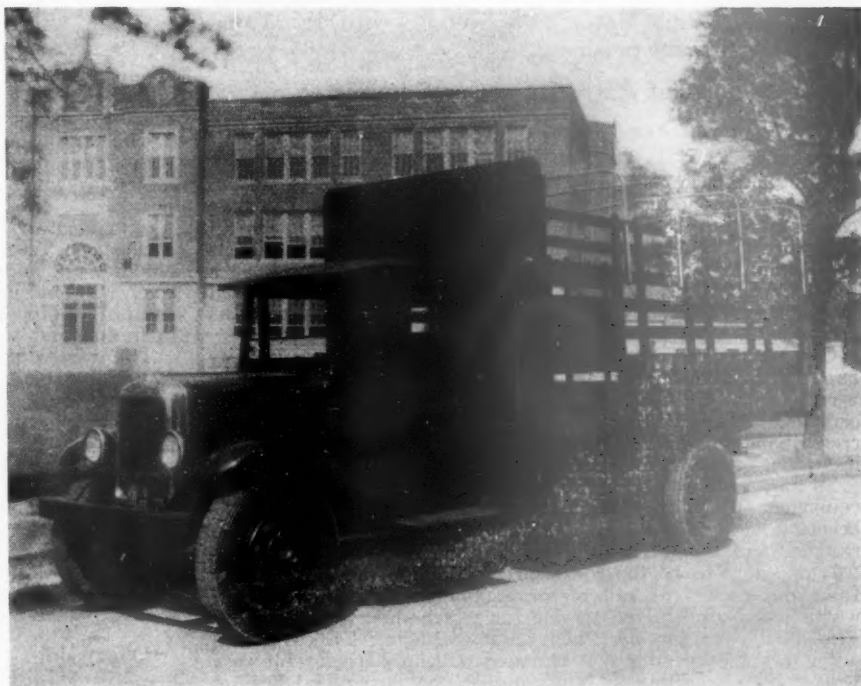
Following the submission of the report of the general committee, Mr. Russell read the report of the law committee in the absence of R. N. Vandoren, vice-president and general counsel of the Chicago & North Western and chairman of the law committee, who was absent on account of illness. The law committee approved the Parker-Couzens Bill with the exception of Paragraph C of Section 9, as the bill has been amended in the Senate, which would make it illegal for any railway in the future to acquire an interest in a motor coach line.

The Regulatory Bill

The report concluded that it would be better to have the bill voted down than passed in its present form. The committee's report also discussed the legality of railway operation of motor trucks through subsidiary companies or through contracts with subsidiary or other companies. It was indicated that no unlawful prac-

tices have been noted as yet in this connection with respect to truck operations which are intrastate in character.

Following the reading of the report of the law committee, there was extended discussion of the history and purposes of Section 9, Paragraph C of the Parker-Couzens Bill, which was originally inserted to avert the possibility of a consolidation of two railways under the terms of the act, but which was later amended through the efforts of certain senators who apparently desired to keep railways out of the motor coach business. A resolution was adopted calling upon those present to inform their executives of the situation.



A Line-Up of Railway Express Agency Tractors and Trailers

Proceedings of Rail Motor Car Section

With the conclusion of the discussion of the report presented by the law committee, the meeting was turned over to the Rail Motor Car Section, with E. Wanamaker, chairman, presiding.

Report of Rail Motor Car Committee

Mr. Wanamaker presented the following report of the Rail Motor Car committee:

The experience gained during the last few years has demonstrated the economic value of the rail motor car for certain classes of rail service when compared to other forms of transport. The chief value of the rail motor car lies in its ability, in many instances, to perform a given service at a relatively lower cost than the same service can be performed by a steam locomotive. The chief secondary value is its cleanliness.

Considering the cost of the rail motor car and its suitability and capacity for high mileage or long hours in service, it as a rule can be most advantageously used in such service. The economies are effected principally by the use of low cost fuel, crew reduction, high availability, and elimination of facilities necessary for servicing steam locomotives.

So far, generally speaking, the economic use of rail motor equipment has been limited to the following: Light traffic branch and local main line passenger service; industry, light transfer and small classification yard switching service.

It appears to be the consensus of opinion that to date the following classes of rail motor equipment have proven their worth when used in the service for which they were adapted: The small bus or light body type, with mechanical transmission, not exceeding approximately 150 hp. capacity for very light traffic, operating as single units; the larger and heavier types, with electrical transmission, ranging in capacity from 150 hp. to 400 hp. single engine units, up to 800 hp. in double or dual units.

In general it has been found that the total train weight per horsepower available may vary from 500 to 900 lb. per horsepower in passenger train service, according to the nature of schedule, profile, etc. For the past several months an 800 hp. motor car has been successfully operated in branch line local freight service.

Mechanical Improvement Marked

Within the last three years, the improvement in the mechanical design of the prime mover and the transmission has been most marked, and if this rate of improvement continues, which may well be expected, it is safe to predict that we will have more powerful and more efficient units available for service and probably at a lower per horsepower cost, depending somewhat on the demand.

It is the intention of the committee to have ready next year a tabulation of the various types and sizes of rail motor equipment that are available for purchase and to work up an analysis of several typical situations based on actual service, wherein it is felt that the use of modern motorized rail equipment will improve the service and reduce the operating costs for local passenger, mail, express, and light package freight motor trains for daylight operation and for operation on through schedules overnight; also to make report and recommendation relative to the use of rail motors in light local freight and switching service.

A report on rail-motor switchers operated by the Lehigh Valley, was presented by F. Hartenstien, assistant to general manager of that railway.

Rail-Motor Switchers

By F. Hartenstien

Assistant to General Manager, Lehigh Valley

Gas-electric motor switchers No. 60 and No. 463 were sent to the Lehigh Valley by the manufacturers for test purposes, and it was during the tests that advantage was taken of the opportunity to prepare a comparative statement showing the cost of operating these units. The statement indicates that there is very little difference in the cost of operating electric Motor No. 463 as compared with Motor No. 60, but the savings

effected by the operation of electric Motor No. 463 as compared with a steam engine, and oil-electric Motor No. 100 as compared with electric Motor No. 463 appear to justify consideration favorable to the operation of rail-motor switchers. Motors No. 60 and No. 463 developed some slight unfavorable conditions during the time that they were under test. These conditions were located by the demonstrators and were corrected or are in process of correction.

The operation and service performed by Motor No. 463 during this period in general yard operation was entirely satisfactory, while Motor No. 60 did not appear to be quite as powerful. In handling passenger equipment at one of our terminals, it was evident that the air brake appliances were inadequate, resulting in some delay. On account of a small compressor and restricted reservoir capacity, considerable time was consumed in charging the train line. Oil-electric Motor No. 100 is the property of the Lehigh Valley and its operation and service is entirely satisfactory.

The tractive power of the four units compared is as follows: Motor No. 463, maximum 30,000 lb., continuous 23,000 lb.; Motor No. 60, 36,000 lb.; G-14 Steam engine, 28,800 lb.

In some localities, where the operation of steam locomotives is objectionable on account of smoke, noise, etc., the use of rail-motor switchers is more desirable for the following reasons:

1. Savings in the cost of operation.
2. Less noise and black smoke.
3. The general handling of cars is smoother, with less rough handling, and they are much cleaner in every respect.

Discussion

Discussion of Mr. Hartenstien's paper centered largely around the fact that an old locomotive was used in determining relative costs and that no reference was made in the analysis to the tonnage handled.

The "relative cost per square foot per mile of revenue floor space as between motor trains and highway vehicles" was the subject of a report presented by H. M. Eicholtz, chairman of Regional Committee No. 6.

Rail and Highway Costs Compared

By H. M. Eicholtz

Assistant general manager, Chicago & North Western

In the following is stated the average cost of operation per mile for several types and sizes of motor trains; also, the average cost per mile for a truck and trailer having a combined capacity of 320 sq. ft. of revenue space, and for a motor coach having a capacity of 160 sq. ft. of revenue space. The average daily mileage of a truck and trailer is figured at 112½ miles. The average cost of operation of the truck and trailer is figured at 54 cents per mile. The average daily mileage of a motor coach is figured at 225 miles. The average cost of operation of the motor coach is figured at 27 cents per mile. The average daily mileage of a motor train is figured at 225 miles.

To obtain comparative costs on a per square foot per mile basis, divide the total number of square feet per motor train by the total number of square feet per highway unit. The quotient will be the number of highway units it is necessary to operate to furnish the number of square feet of revenue space equivalent to that of the motor train. Multiplying the cost per highway mile by the number of highway units, the product will be the cost per mile by highway units for the equivalent number of square feet of revenue space in a motor train. Divide this equivalent highway unit cost per mile by the motor train cost per mile. The quotient will be the number of times the equivalent highway unit cost per mile is greater than the train cost per motor train mile. The cost per square foot per mile for either motor train, motor truck or motor coach is obtained by dividing the per mile cost for the unit in question by the number of square feet of revenue space in that unit.

In explanation of the figures shown below, the cost per square foot of revenue space per mile was obtained by dividing 26.8 cents by 160 sq. ft. in the case of the motor coach. When comparing the equivalent number of square feet of

revenue space in the motor coach with that in the motor train, the figure of 27 cents per motor coach mile was used instead of 26.8 cents, since one of the calculators saw fit to use the 27 cent figure instead of the decimal 26.8 plus. However, the difference is so slight as to be of no moment when using average operating cost figures.

The cost per square foot of revenue space per mile in the case of the motor truck was obtained by dividing 54 cents by 320 sq. ft. (which represents one 8 ft. by 20 ft. truck and one 8 ft. by 20 ft. trailer). The cost per square foot of revenue space per mile in the case of the motor train was obtained by dividing the total cost of operation per train mile by the total number of square feet of revenue space in the train in question.

Fixed charges are not included when comparing with steam train costs. However, our rates for passenger equipment in general are $2\frac{1}{2}$ per cent depreciation and 5 per cent interest, or a total of $7\frac{1}{2}$ per cent, plus $\frac{1}{2}$ of 1 per cent for taxes and insurance—a grand total of 8 per cent for fixed charges. In view of the fact that motor car equipment has of necessity to be maintained 100 per cent, the $2\frac{1}{2}$ per cent depreciation figure is used for power plant as well as for car body and trucks.

(Figures are based on 6 months period—1930)

Average mileage per day	225
Longest mileage per day	334
Shortest mileage	70
800 H. P. Motor Car Trains (9 trains involved):	
Average, one 800 H. P. Motor Car hauling $3\frac{1}{2}$ trailers.	
Maintenance cost per mile, including trailers	\$0.101
Operating cost per train mile, including wages, supplies, engine house expense, fuel and lubrication, and general O. H. cost at 3c per train mile	0.413
Total	\$0.514
Cost per sq. ft. of revenue space per mile ($3\frac{1}{2} \times 65 \times 9\frac{1}{2} = 2,161$ sq. ft.)	0.0002378



P. R. R. Rail Motor Car with Trailer

Fixed charges on motor car per mile, 225 miles per day, 11 months per year, approximately	0.10
Total	\$0.614
Cost per sq. ft., including fixed charges	0.0002841
Availability	97.65%
Motor coach 5.936 times higher per sq. ft. of revenue floor space per mile.	
13.50 motor coaches required to equal motor train revenue floor space.	
Two (2) 550 H. P. Motor Car Trains (2 trains involved):	
Average, one 550 H. P. motor hauls two trailers.	
(2 x 65 x 9 $\frac{1}{2}$ = 1,254 sq. ft.)	
Maintenance	\$0.11
Operation	0.39
Total	\$0.50
Cost per mile per sq. ft. of revenue space	0.000454
Plus Fixed Charges	0.08
Total	\$0.58
Cost per mile per sq. ft. of revenue space, including fixed charges	0.00047
Availability	87.55%
Motor coach 3.65 times higher.	

275 H. P. Motor Car Train (13 trains involved):	
Average, one (1) 275 H. P. motor car hauls one trailer.	
(M. C. 55', T. 45' x 9 $\frac{1}{2}$ = 950 sq. ft.)	
Maintenance	\$0.068

Operation	0.229
Total	\$0.297
Cost per sq. ft. of revenue space per mile	0.0003127
Fixed charges	\$0.054
Total operating cost, including fixed charges	\$0.351
Cost per sq. ft., including fixed charges	0.0003695
Availability	96.66%
Motor coach 4.569 times higher.	

200 H. P. Motor Car Train (4 trains involved):	
Average, one motor car and $\frac{1}{4}$ trailer.	
Maintenance	\$0.085
Operation	0.2955
Total	\$0.3805
(M. C. 50', T. 40' x $\frac{1}{4}$ x 9 $\frac{1}{2}$ = 760 sq. ft. revenue space)	
Cost per sq. ft. of revenue space	0.000501
Fixed charges	0.0353
Total	\$0.4158
Cost per mile per sq. ft. of revenue space, including fixed charges	0.0005471
Availability	98.53%
Motor coach 3.084 times higher.	

240 H. P. Motor Car Train (5 trains involved):	
Averaging one motor car and $\frac{1}{2}$ trailer.	
(M. C. 60', T. 45' x $\frac{1}{2}$ x 9 $\frac{1}{2}$ = 784 sq. ft.)	
Maintenance	\$0.058
Operation	0.323
Total	\$0.381
Cost per sq. ft. of revenue space	0.000486
Fixed charges	0.0571
Total	\$0.4381
Cost per sq. ft. of revenue space, including fixed charges	0.000559
Availability	92.2%
Motor coach 3.042 times higher.	

Two (2) 175 H. P. Motor Car Trains (2 trains involved):	
Averaging one motor car.	
Maintenance	\$0.0905
Operation	0.3045
Total	\$0.3950
(55 sq. ft. revenue space equals 522 sq. ft.)	
Cost per sq. ft. of revenue space per mile	0.000757
Fixed charges	0.0377
Total	\$0.4327
Cost per sq. ft. of revenue space, including fixed charges	0.000829
Availability	92.33%
Motor coach 2.035 times higher.	

One (1) 85 H. P. Motor Car Train (1 train involved):	
Average, one motor car 25 x 9 $\frac{1}{2}$ = 238 sq. ft.	
Maintenance	\$0.055
Operation	0.258
Total	\$0.313
Cost per sq. ft. of revenue space	0.0013145
Fixed charges	0.0183
Total	\$0.3313
Cost per sq. ft. of revenue space, including fixed charges	0.0013925
Availability	92.33%
Motor coach 1.211 times higher.	

800 H. P. Motor Train in Mixed Service (1 train involved):	
The average square feet of floor space is based on the following:	

The probable average mixed train on light traffic branch lines consists of twelve freight cars and one 70' passenger car.		
8 of the freight cars at 40' 9" = 360 feet	2,880	square feet
4 stock cars	1,224	" "
Total	4,104	" "
Passenger car	630	" "
Total	4,734	" "
Cost of operating the particular train in question is based on nine (9) hours on the road, covering 108.6 miles, with four hours terminal switching.		
The Cost of Operation per Train Mile—		
Without fixed charges, per mile	\$1.15	
With fixed charges, per mile	1.376	
The Cost of Switching—		
Without fixed charges, per hour	13.90	
With fixed charges, per hour	16.62	
Cost per Square Foot of Revenue Space—		
Without fixed charges, per mile	.000243	
With fixed charges, per mile	.000291	
Availability—		
First six months of 1930	100%	
The motor truck cost is 5.805 times higher.		

The following factors were used in arriving at the foregoing figures:

One truck 8 ft. by 20 ft.	= 160 sq. ft.
One trailer 8 ft. by 20 ft.	= 160 sq. ft.
Total	320 sq. ft.

Average of 160 sq. ft. revenue space per motor coach. Figured average mileage per day for a motor coach, 225 miles; for a truck, 112½ miles. Average cost per 160 sq. ft. motor coach mile, 27 cents. The motor coach cost per sq. ft. per mile equals approximately \$0.001675.

Figuring that the cost per hour for operating a truck approximates the cost per hour for operating a motor coach in long-haul traffic, and that the truck speed will be about half the motor coach speed, the cost per mile for operating the truck and trailer would equal approximately 54 cents per mile, which in turn will equal a cost per square foot per mile of \$0.001675.

Discussion

It was pointed out that the load factor is of utmost importance in considering comparative motor coach, rail car and train costs. In answer to a question as to the purpose of the report, Mr. Eicholtz stated that the purpose was to show the lower cost per unit of space in a rail car than in a motor coach or truck. Mr. Wana-maker further explained that the papers and others on the program were intended to be merely steps in the direction of the solution of the problems arising from changing methods of transportation.

A report on the traffic-development possibilities of the rail motor car was submitted by E. M. Smith, special representative, Erie.

The Rail Motor Car from the Traffic Standpoint

By E. M. Smith
Special Representative, Erie

Until five or six years ago, available rail motor cars were generally regarded as suitable only for reducing the cost of handling light branch traffic. The earlier cars, with their rather frequent road failures, highly uncomfortable seating accommodations and riding qualities, jerky acceleration with mechanical transmission, lack of attention to general appearance, etc., while reducing the cost per mile of operation, certainly did not serve to make railroad automotive transportation popular.

The modern electrical-transmission rail motor car has proven its attractiveness from mechanical and operating standpoints, and earned for itself very general recognition as a reliable and economical type of railroad motive power. In addition to its demonstrated ability to lower operating costs, for which generally used to date, it appears to the writer that rail motor cars, and other types of equipment employing internal combustion engines as prime movers, in addition to reducing expenses, may be advantageously used to combat the continuing loss of traffic to highways and other forms of competition.

Many of the local passenger train schedules appear to be

predicated on traffic handled and conditions existing before the present general improvement of public highways and the ever-extending use of public and private automotive highway vehicles. It has also been observed in some instances that in scheduling these local trains, the time allowance has been made very generous so that even under very unusual conditions, "on time" performance may be achieved. While the desirability of maintaining schedules is appreciated, it is felt that the running time should be set to meet competition and normal conditions, even though an occasional train is late.

Use of automotive power often permits elimination of restrictions imposed on speed of steam operation. It has been demonstrated that on restricted track, automotive equipment may with safety be operated 10 to 15 miles per hour faster than steam power. The possibility of eliminating or materially raising speed restrictions so presented permits making faster schedules. This possibility will, of course, be found particularly desirable on branch lines restricted to speeds 10 to 15 miles per hour below main line limitations. Rail schedules too frequently permit highway operations to materially beat railroad time and cause the railroads to lose considerable of their past prestige as a transportation agency in these days when the time element is so highly regarded by the traveling public. The fastest time between two points is always a good sales argument.

Additional Service

One of the reasons frequently advanced for the growing use of highway coaches and private automobiles is that they offer more frequent service between commercial centers. Considering the relatively low out-of-pocket cost of operating the modern rail motor car, it might be well to consider the further utilization of this class of equipment by adding additional service at hours found to be most convenient to the traveling public and the railroads, instead of the conventional round trip service now offered.

Presumably, mail and express can be handled with the present service, making the additional service for passengers only. The consequent reduction in load would reduce the operating costs and permit speeding up of the schedules. By reason of greater comfort in seating conditions, lavatory facilities, and higher speed with rail motor cars, as against highway coaches, it would seem that such convenient automotive rail transportation would attract passengers who are now riding highway coaches, and in many instances, would be some inducement to the individuals now using private automobiles.

Question of Special Rates

The suggestion has been made that, by reason of the lower cost in operation of the modern rail motor car, railroads should consider the introduction of special rates on this class of transportation, such motor trains not to carry baggage other than that which can be taken care of by the passengers in the coaches, giving the same accommodation in this respect as do the highway coaches, and layout of train to be such as to afford the greatest possible seating capacity per ton of non-revenue load, so reducing the required investment in power plant, subsequent cost of operation, maintenance, etc. This, of course, is a debatable subject, but we note that one railroad has already filed tariffs to make such a plan effective. If it is the reduced rate of fare, plus more frequent service, that makes highway transportation attractive, it would appear that, with the modern rail motor car, highway competition may be successfully met.

In many instances, so-called through trains are required to stop at less important stations for the handling of mail, parcel post, express and occasional passengers. In many instances, the cost of stopping such heavy through trains exceeds the revenue derived. There appears in this direction a possibility of operating rail motor cars on a schedule in advance of such through trains, for the purpose of picking up the traffic of the less important stations and depositing it at stations where the through trains must stop. The elimination of these stops would reduce the cost of operating the through trains, permit improvement in their schedules, and should be attractive to the through traffic.

Weight was, and of course still is, a factor to be considered in motor train operation. Today, however, higher-powered motor cars are available, and with central heating plants that can heat a number of trailers. The day of the stove-heated motor car trailer, in so far as necessity is concerned, has passed, and the power of rail motor cars is commonly such that standard trailers can be operated, avoiding any necessity of providing special trailing equipment. However, since weight is a factor in motor train operating costs, it logically follows that the lighter the trailing load, the less the operating cost per mile will be; and likewise the higher the speed that may be maintained.

While the power is available to pull standard trailers, it would appear to be a step in the direction of economy and progress to consider for motor trains the purchase of light-weight modern trailers, with the latest in seating facilities, wide windows, attractive interior decorations, modern sanitary facilities, electric fans, window screens, etc. The desirability of making investment in such trailer purchases, as compared with using available standard coaches for trailers, may be readily determined by considering against purchase cost the saving to be effected in the investment for the power plant, its maintenance and operation and the possible increased revenues which the railroad might secure by the attraction of the modern accommodations.

Other Uses

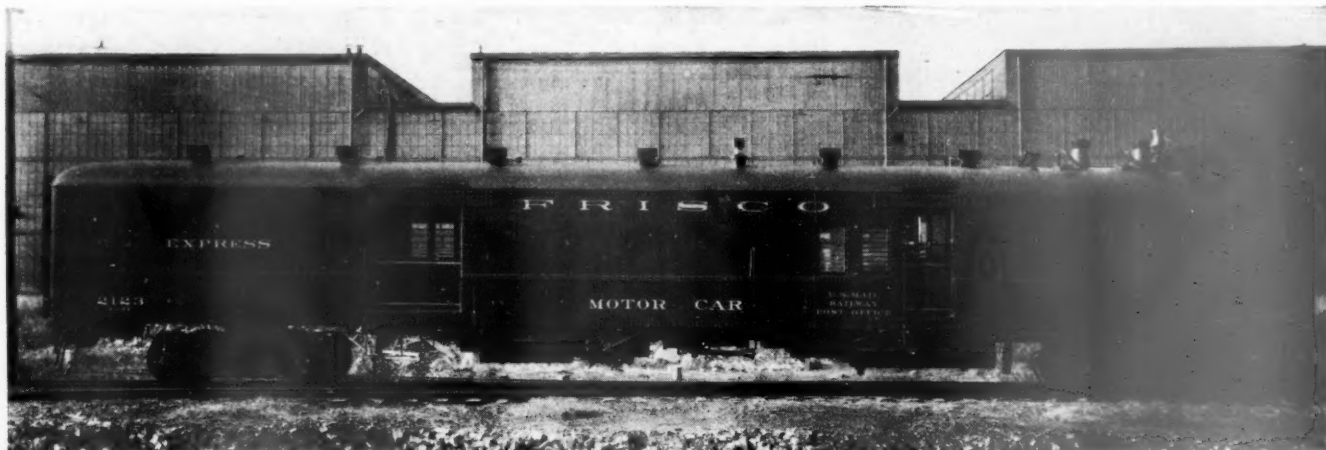
In addition to the rail motor cars in passenger service, there appear to be other attractive fields for this type of power. Internal combustion switching locomotives are now available of sufficient capacity to perform the ordinary switching service encountered in the switching of passenger trains at terminals. The internal combustion engine, in addition to its freedom from smoke, cinders and noise, has the advantage of high initial tractive effort at starting, automatically insuring smoother starting and stopping of the load. Apart from the economy possible in many directions by the employment of such power, it appears that application has rather attractive possibilities in preservation of passenger good will.

In industrial switching, many switching locomotives are engaged adjacent to factories, warehouses, office buildings, etc.,

freight of character handled by the trucks and involved in the mentioned tonnage reduction, could likely be performed with a profit even on the basis of handling a limited number of cars, the lower operating costs and the greater availability of the motor unit as compared to steam, making it unnecessary to secure as much tonnage as required to make the normal steam service profitable. The rail motor service should permit of the later receipt of freight now trucked, and still place it at destination in advance of highway operations when the intervening distance is beyond the scope of economical trucking.

Night Operation for Freight

It occurs to the writer that especially for night trucking competition, it may be possible in some cases to use high-powered cars assigned to daylight local passenger service. By reason of the limitation of schedules, it frequently is impossible to secure daily mileage in passenger service such as is available in automotive equipment, and very frequently the power cars are not actually in service more than six or seven hours daily, or about one-third of the possible utilization. This results in a heavy overhead charge against each mile of operation for interest and depreciation. If additional mileage could profitably be made in the handling of package freight between passenger train schedules, the division of overhead between the two classes of service would materially reduce the per mile cost and, by more complete utilization of its high availability, produce a more satisfactory return on the investment in automotive equipment. The various possibilities suggested by the assigned subject, and the time assumed allowable for presenta-



Gas-Electric Rail Motor Car on the St. Louis-San Francisco

where smoke, cinders and noise are highly objectionable and occasionally produce criticism from shippers, as well as frequent claims for damages, particularly on fires claimed to have originated from steam locomotives. A switching locomotive entirely free from these objections would, in addition to economical advantages, seemingly be a rather valuable agency for the maintenance of more satisfactory traffic relations with the industries affected, particularly when intra-plant work is to be performed.

Meeting Truck Competition

Highway truck operation is diverting many tons of package freight which in the past was handled by the railroads, and this, obviously, has resulted in loss of considerable revenue. In the decade 1920-1930, instead of an increase, the final 1930 tabulations will show a decrease approximating 35 per cent in tons of l. c. l. handled. In view of the development of internal combustion power, would it not be well to give consideration to combating this loss in freight revenues to highway competition with high-powered motor rail equipment, hauling light weight, suitably designed trailers between commercial centers? The cars could be spotted at a designated loading platform, and the freight accumulated and loaded the same as house cars are now loaded at freight houses. At closing time, the rail motor unit could be attached to the train, and the freight started on its way without delay. Cars could be made for various important stations and dropped en route. Obviously, an arrangement of this kind presupposes some plan whereby local trucking concerns or the Railway Express Agency would provide for a pick-up and delivery service, such as now afforded by highway operations.

Service of this character, involving the handling of light

tion, have necessarily resulted in more generalities than specific facts. The writer holds a strong personal conviction that there are many fields, from a traffic standpoint, in which modern automotive power can be applied by the railroads to meet the competition and loss in revenues, passenger and freight, created by the operation of such power on the public highways.

These revenue losses continually grow greater and appear more likely to increase than decrease in future, as more highways are constructed and highway public transportation operations become more numerous and organized for longer hauls, unless, by approval of transportation the rails can offer, the public can be sold on the superiority of rail service. My opinion is that the railroads, with their private steel ways—constructed and maintained at their own expense in manner most suitable for public transport—seasoned personnel, desirable terminal facilities, and the many other attributes of long experience in the transportation art, should be able to give service with automotive power infinitely superior to anything automotive public highway operations can hope to offer in safety, economy, comfort and speed.

Discussion

The discussion of Mr. Smith's paper developed an extended argument as to the ability of the rail motor car to regain lost passenger traffic. Some contended that it could not do so, others that it could. It was finally agreed, however, that the rail motor car, as a transportation unit of great availability, has many possibilities which have not yet been thoroughly utilized or developed.

Proceedings of Motor Coach Section

P. J. Neff, assistant to president of the Missouri Pacific, and chairman of the Motor Coach Section, took the gavel at the opening of the second day's session. At the outset, Mr. Neff discussed briefly the meeting at Kansas City, Mo., of representatives of railway and motor coach lines for the purpose of stabilizing railway and motor coach rates, and also the Interstate Commerce Commission investigation of railway and motor transport co-ordination which is now under way. Referring to the reports which were about to be presented, he stated that all of them were intended to be steps in the direction of definite recommendations concerning motor coach operation which the division might make to railway executives. Following his opening remarks, the presentation of the prepared papers began.

A formula for determining the comparative costs of railway and highway service was presented by E. W. Lollis, chairman of Regional Committee No. 3.

Motor Coach Substitution for Branch Line Trains

By E. W. Lollis

General Superintendent, Chicago, Milwaukee, St. Paul & Pacific

At the Atlantic City meeting, it was decided that a formula should be devised for determining the cost of both motor coach and rail transportation in order to make a comparison of the relative expense of the two classes of service. As a usual thing, steam train operation is succeeded by rail motor car operation, and rail motor car operation is succeeded by motor coach operation where highway and other conditions permit. Therefore, in working up this formula, steam train operation was first considered, then rail motor car, and last motor coach operation as compared with the two former operations.

In making up this formula, the work was carried on by our statistician, G. F. Vivian, and as a result of the study I will present for your consideration the formula that was devised, based on the I. C. C. classification of accounts.

Table I is a comparison of the cost of operation of a two-car steam train, a rail motor car (without trailer), and a highway motor coach, equated and actual per revenue mile. The items used are those included in the formula, with the exception of revenues, which are omitted. Table II is an index of selected accounts and distribution of such accounts under the I. C. C. classification of accounts.

(The formula itself sets up comparative revenues from

from passengers, baggage, mail, express, milk and other train revenues, and suggests apportionment of various expenses under the various accounts indicated in Table II.—EDITOR).

In the use of a formula of this type, it is understood that only one of the three services is available from an actual standpoint, and that the other two operations must be estimated, using the formula as a guide to the establishment of the estimated figures until such time as the other type of service is inaugurated. It must be understood that the formula presented will not answer the question as to whether or not

Table I—Comparative Cost of Operation per Revenue Mile For a Two Car Steam Train, Rail-Motor Car and Highway Bus

Items	Cost Per Revenue Mile			
	Two-Car Steam Train	Rail-Motor Car Without Trailer	Highway Bus Equated**	Highway Bus Actual
Trainmen	\$.1254	\$.0924	—	—
Enginemen .....	.1315	.0726	—	—
Total Train and Enginemen ..	\$.2569	\$.1650	\$.07728	\$.06720
Repairs to Equipment	\$.2071	\$.1260*	\$.09299	\$.08086
Depreciation .....	.0199	.0195	.07680	.06678
Fuel and Water .....	.1443	.0919	.04593	.03994
Lubricants .....	.0026	.0117	.01225	.01065
Enginehouse Expense .....	.0409	.0074	.00107	.00093
Other Supplies .....	.0039	.0007	.00322	.00289
Supplies for Crew—Cleaning cars—Lubricating cars—Ice—Water and coal for cars .....	.0227	.0157	.00941	.00819
Total Operating Expenses...	\$.6983	\$.4379	\$.31895	\$.27735
Taxes	—	\$.0079	\$.04139	\$.03599
Interest on Investment	—	.0392	.02117	.01841
Total Expense	\$.6983	\$.4850	\$.38151	\$.33175

* Motor car only. Add \$.0237 for trailer.

** Equated cost per mile—Highway mileage 15% greater than rail mileage.

a rail motor car or a motor coach should be substituted for steam trains, as the conditions at various points will have to be taken into consideration. However, we feel that the formula as submitted will give an idea as to the accounts that should be taken into consideration when the operating conditions are favorable for a change in service.

I want to call your attention to an article in the *Railway Age, Motor Transport Section*, of August 23, describing several investigations, analyses of branch lines on a certain railroad. The analysis on one branch line of freight service operated daily except Sunday, one crew being required, showed 600 tons l. c. l. freight unloaded and 600 tons l. c. l. freight set out. Three competitive common carrier truck lines were in operation parallel to this branch line, and they handled dur-

Table II—Index of Selected Expenses and the Distribution of Such Expenses Under the Interstate Commerce Commission Classification of Accounts

Items	Steam Railroad-Train Operation	Rail-Motor Car Operation	Highway Bus Operation by Railroad
Operating Revenues:			
Passenger	102	102	102
Excess Baggage	103	103	103
Mail	106	106	106
Express	107	107	107
Other Passenger Train ..	108	108	108
Milk	109	109	109
Operating Expenses:			
Repairs to Equipment	Steam Loco. 308	Rail-Motor Cars 317	Misc. Equip. 329
Depreciation	Pass. Tr. Cars 317	Motor Equip. of Cars 320	Misc. Equip. 330
	Steam Loco. 309	Rail-Motor Cars 318	
	Pass. Tr. Cars 318	Motor Equip. of Cars 321	
Transportation:			
Train and Enginemen	392 & 401	393 & 401	411(a)
Fuel	394	402(a)	411(b)
Water	397	402(b)	—
Lubricants	398	402(c)	411(c)
Enginehouse Expense	400	402(e)	411(e) 411(f) 411(g)
Other Supplies	399	402(d)	411(d)
Supplies for Crews	402(f)	402(f)	—
Cleaning Cars	402(g)	402(g)	—
Lubricating Cars	402(h)	402(h)	—
Ice Water and Other Car Supplies	402(i)	402(i)	—
Other Expenses	402(j)	402(j)	411(h) 411(i)
Taxes Interest:			
Railway Tax Accruals	—	532	532
Interest on Investment ..	—	Motor Car Only	Bus

ing the year, 9,000 tons of freight which had formerly been carried by the railway. Contract truck operators paralleling this branch line also carried 1,500 tons of freight during the year. Trucks owned by farmers carried 3,000 tons during the year.

Another item in this article states that between two points two trains were being operated with an annual mileage of 31,000 miles, the passenger revenue being 34 cents per mile, or \$10,000 per year; head-end revenue amounted to 21 cents per mile, or \$6,500 per year, making a total revenue of 55 cents per mile, or \$16,500 per year. The cost of train service was \$22,500, compared with an estimated cost of \$14,000 if a rail motor car were operated, or \$9,000 if a motor coach were operated. The deficit from the steam operation is \$6,000 a year, while it was estimated that a net operating income of \$2,500 would result from the operation of a rail motor car, or \$4,500 from a motor coach. The suggestion was made that a motor coach should be substituted for the steam service, saving \$9,000 annually.

Discussion

Mr. Lollis explained that the motor coach cost figures presented in his report represented an average of the cost of operating approximately 20 motor coaches. No

2, prepared a report on the trend and extent of long-haul highway transportation, as compared to long-haul railway service, which was read in Mr. Lanigan's absence by G. G. Truesdale, general passenger agent, Illinois Central.

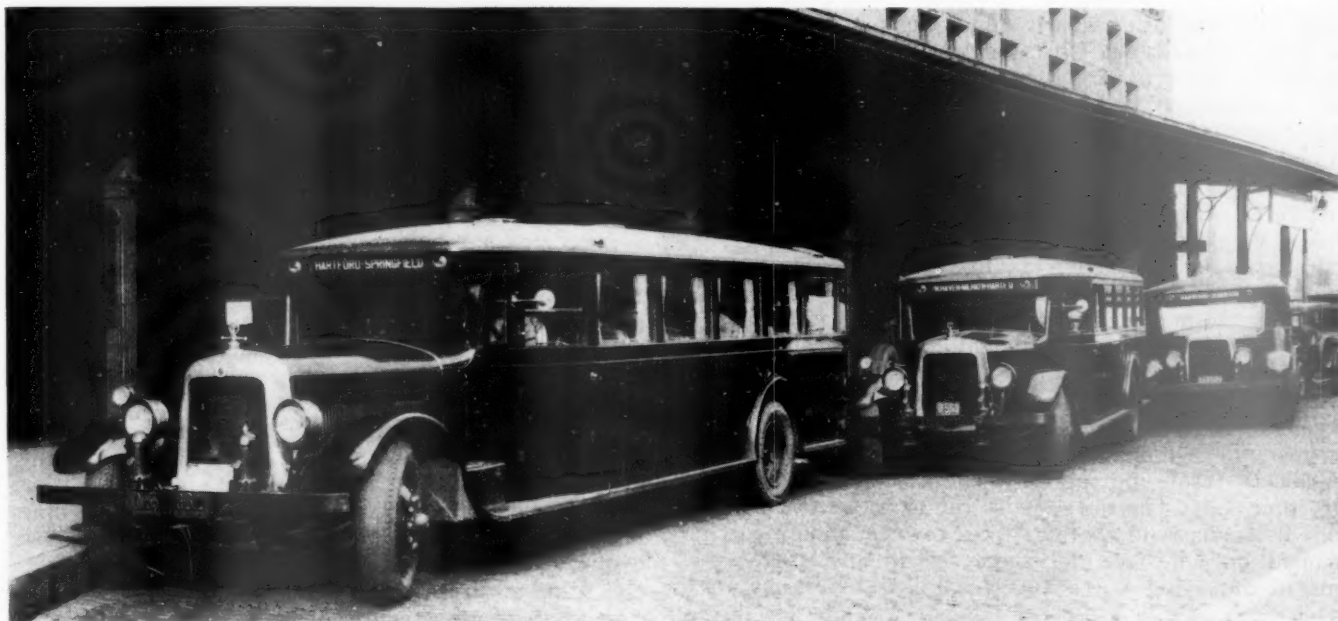
Long-Haul Service

By J. V. Lanigan

Passenger Traffic Manager, Illinois Central

The judgment of the members of the committee who have replied to a questionnaire on this subject is that the trend of long-haul motor coach transportation is on the increase. This is my observation also. It is apparent that the private automobile is as much a factor of competition to the motor coach companies as it is to the rail lines for short-haul travel. Far-seeing highway operators are, accordingly, undertaking to develop long-haul business to the fullest extent.

It is a matter of self-preservation to them. They are now offering cheap rates between a great many distant points



Motor Coaches of the New England at the New Haven's Hartford, Conn., Station

allowance had been made, he said, for the varying capacities of the units compared.

It was pointed out in the discussion that it is necessary to have steam train equipment on hand for use in case of failure of rail motor car or motor coach equipment, and that the rate of depreciation on trains, rail motor cars and motor coaches enters into the comparison of costs. It was stated that there are more failures of rail motor cars than failures of steam trains, but this, it was believed, was due to the more constant use made of rail motor cars.

One representative asked if it would not be possible to use a rail motor car to replace the steam engine and passenger car on mixed trains in order to reduce operating costs. One road reported that it has several lines where rail motor cars are being used in this way, and are handling the business satisfactorily while effecting economy. It was pointed out that it is necessary in such cases, however, to provide a rail motor car more powerful than that necessary to handle the regular business in order to be able to haul the occasional extra cars of freight, substantially increasing the day-to-day operating costs.

J. V. Lanigan, chairman of Regional Committee No.

throughout the country, introducing the sleeper coach, improving the design of the coach, selling through coupon tickets to cover interline business, and otherwise undertaking to control as large a volume of long haul traffic as possible. In this enterprise they seem to be meeting measurable success. Of course, the cheap rates are very helpful to them in this connection.

So far as the extent of their long-haul business is concerned, I think I can best answer this by stating that a two-day check (April 30-May 1, 1930) of all motor coach operations between Chicago and St. Louis, conducted by representatives of all Chicago-St. Louis rail lines, showed that the coach companies on those two days averaged a total of 524 passengers per day between Chicago and St. Louis. A similar check of the day coach business handled by all the Chicago-St. Louis rail lines for the six-day period, May 4 to 10, 1930, showed that this coach business averaged only 142 passengers per day, handled by all lines at the regular one-way rate. This check did not take account of any excursion or other travel, including only the one-way tickets handled in coaches at the regular rate, but, considered in connection with the motor coach check, it is indicative of the volume of business lost to the motor coach companies.

Speaking particularly of the trend and extent of long-haul rail transportation, I have been unable to locate any figures which would throw any definite light on the general subject, but judging from the experience of the Illinois Central, and bearing in mind the views of those replying to the questionnaire, I should say that the trend is downward, although it is a difficult matter to determine the extent. That the loss of

long-haul rail traffic, particularly in certain sections, is considerable, however, is evidenced by the check of rail coach business vs. motor coach business between Chicago and St. Louis.

I think it goes without saying that while the motor coach companies, through their very low rates, really create a certain amount of traffic which we could not afford to move under the basic rail rate, nevertheless it is patent they must be handling a considerable volume of business which would move rail if motor coach service were not available, and which, simply as a stroke of economy, takes advantage of this cheaper means of travel. This last is particularly true now when the depressed business conditions make it imperative for a great many people to save every dollar possible. There is, too, a certain element which seems to prefer the highways to the railways, and, therefore, uses the motor coach through choice.

These factors, together with the constantly increasing use of the private automobile for vacation trips, all unite in reducing the volume of long-haul rail travel. Of course, the rail statistics giving the average miles per passenger are still showing increases, due to the collapse of our local business.

Discussion

The first question asked following the presentation of Mr. Lanigan's paper was as to whether or not the motor coach lines are losing money and going out of business. In reply it was stated that the well-operated lines are continuing and growing, although some others are going out of business. These latter, however, are usually replaced promptly. With reference to the sleeper motor coach, it was stated that the railways need not worry about such competition. Between Los Angeles and San Francisco, where sleeper motor coaches were first installed, the service has been discontinued.

In reply to a question as to the difference in the volume of business moving between Chicago and St. Louis by motor coach in the day time and at night, it was stated that there is little difference in volume although there is a substantial difference in the apparent circumstances of the travelers. It was stated that between Chicago and St. Louis, some 42 motor coach trips are made in each direction daily, while there are approximately 17 trains moving between these points in each direction daily. The railways operating between Chicago and St. Louis reduced their rates to meet motor coach competition but have not succeeded to any great extent in impairing the business handled by the motor coach lines.

In response to a question as to the manner in which the low railway fares have been advertised, it was stated that all available means, including newspaper advertising, handbills and radio, have been used, but in spite of this many people seem to be unaware of the low rates

in effect on the railways. The motor coach, it was said, has acquired a reputation as the most economical means of travel, even though in many instances railway fares in effect are no higher than motor coach fares between the same points. One reason suggested for the heavy traffic secured by the motor coach lines was the statement that in St. Louis there are 278 places in which motor coach tickets can be purchased.

Reduced Day Coach Rates

The proposition of reducing rates for transportation in railway day coaches was discussed at great length. It was stated on the one hand that if it were possible by reduced rates to bring back to the railways all of the traffic now handled by motor coach lines, the railways would still not increase their gross revenue, assuming a rate reduction to approximately 2 cents per mile. If the volume of traffic which moved in common carriers some years ago were now available, a recovery of the traffic now handled by motor coach lines would be beneficial to the railways, but private automobiles have greatly reduced this volume. A chart showing comparisons of the number of passengers necessary to pay operating expenses in steam trains, rail motor cars and motor coaches was submitted, and the conclusion was drawn from this chart that the railways would have to reduce their passenger rates to one cent a mile to reach a rate which the motor coach lines could not afford to meet and still pay their operating expenses. A 33-passenger motor coach, it was stated, will earn a profit if 16 passengers are carried at a rate of 1½ cents a mile per passenger.

On the other hand it was pointed out that the railways should not neglect to try every means at their disposal in the attempt to stem the tide of declining passenger revenue. Furthermore, it was stated that the railways owe a duty to the public to provide the kind of transportation service which apparently a substantial part of the public want—cheaper transportation.

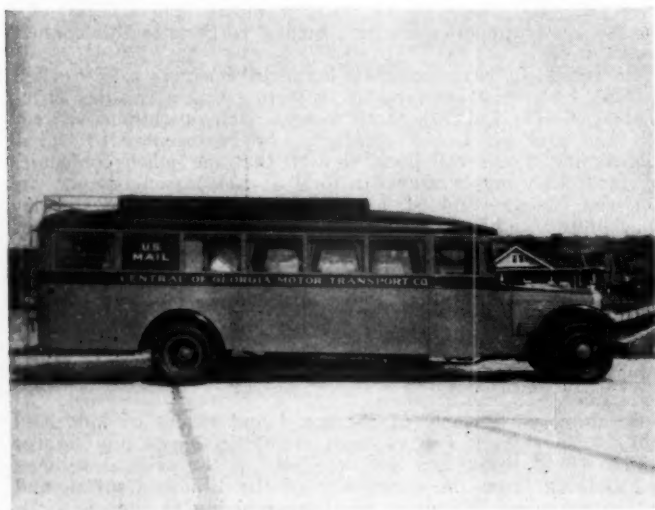
It was stated that the motor coach lines are going through the same experience as the railway lines in that they are losing their short-haul business to private automobiles and are being forced to fall back upon long-haul business. One railway in the East, which is interested in an extensive motor coach system, is now getting rid of its local passenger motor coach operations as rapidly as possible, it was stated.

A study of motor coach operating costs was presented by C. R. Harding, chairman of Regional Committee No. 4.

Motor Coach Operating Costs

By C. R. Harding

Assistant to President, Southern Pacific



Motor Coach with Mail Compartment on Central of Georgia

The large number of railroads now engaged in operating motor coaches, either directly or through subsidiaries, the fact that their operations are widely scattered geographically, and that much of the equipment used has been in service for several years, makes it possible for the first time to obtain reliable information as to motor coach operating costs. This is not a reflection upon the published figures of independent motor coach companies, but as is well-known, conservative railroad managements have hesitated to accept those figures heretofore because of differences in accounting practices, and in some cases, pressure of financial requirements and equipment manufacturers which made it essential to have good "paper" showings.

Unfortunately, even among the motor coach systems affiliated with railroads, there is considerable variation between the classifications of accounts used, and it would be very dif-

difficult, if not impossible, to obtain detailed comparisons of the smaller items of expenses. However, by grouping the principal classes of expenditures, as has been done in the exhibits attached to this report, comparisons can be made which it is hoped will be both informative and useful.

For the purposes of this report, actual cost figures were obtained from ten motor coach companies having railroad affiliations; two on the Atlantic coast, four in the Middle West, and four on the Pacific coast. The total annual motor coach mileage operated by these ten systems is more than 72 million. For obvious reasons, corporate names are not given. The periods covered by the figures are either for the entire year 1929, or for six or eight months of 1930.

Tables I, II, III, and IV show weighted average costs for all classes of motor coach service by geographical districts and for the entire United States as represented by these ten systems. It will be noted that in general the out-of-pocket costs of each system are quite close to similar costs of the other systems in the same geographical district, but there is quite a wide variation between the out-of-pocket costs of various districts.

Briefly summarized, the figures are:

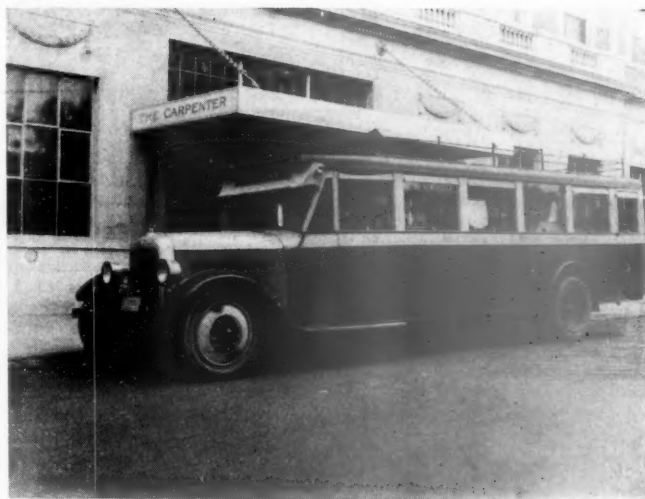
Costs Per Motor Coach Mile			
	Out-Of-Pocket	Overhead	Total
Atlantic Coast Systems..	21.906 cents	8.381 cents	30.287 cents
Middle-Western Systems..	17.181	6.441	23.622
Pacific Coast Systems...	19.099	7.681	26.780
Weighted average	19.014 cents	7.462 cents	26.476 cents

Table I—Average Cost of Operating Buses
(In cents per mile)

	Two Atlantic Coast Systems	Four Middle Western Systems	Four Pacific Coast Systems	Weighted Average
Annual Mileage	10,540,000	18,627,000	42,850,000	
<i>Out-of-Pocket Expenses:</i>				
Drivers, Fuel, Lubricants & Garage Service	9.966	6.675	7.933	7.905
Maintenance of Equipment	5.654	5.661	5.106	5.330
Depreciation of Equipment	4.593	3.006	3.250	3.383
Injuries, Damages and Liability Insurance	1.257	0.957	1.044	1.053
Operating Taxes on Gasoline and Gross Revenues	0.436	0.882	1.766	1.343
Total Out-Of-Pocket	21.906	17.181	19.099	19.014
<i>Overhead Expenses:</i>				
Superintendence, Stations & other Transportation Costs	3.297	2.357	3.299	3.055
Maintenance & Depreciation of Buildings, Machinery & Tools	0.926	0.670	0.309	0.493
Traffic & Advertising	1.081	0.698	1.093	0.989
Taxes on Property, Licenses & Franchises	1.398	0.495	0.154	0.424
General & Miscellaneous	1.679	2.221	2.826	2.501
Total Overhead	8.381	6.441	7.681	7.462
GRAND TOTAL	30.287	23.622	26.780	26.476

Table II—Average Cost of Operating Buses
(In cents per mile)

Atlantic Coast Systems			
	No. I	No. II	Weighted Average
Annual Mileage	8,400,000	2,140,000	
<i>Out-of-Pocket Expenses:</i>			
Drivers, Fuel, Lubricants & Garage Service	10.250	8.850	9.966
Maintenance of Equipment	5.787	5.130	5.654
Depreciation of Equipment	4.706	4.150	4.593
Injuries, Damages and Liability Insurance	1.076	1.970	1.257
Operating Taxes on Gasoline and Gross Revenues	0.407	0.550	0.436
Total Out-Of-Pocket	22.226	20.650	21.906
<i>Overhead Expenses:</i>			
Superintendence, Stations & Other Transportation Costs	3.217	3.610	3.297
Maintenance & Depreciation of Buildings, Machinery & Tools	0.830	1.300	0.926
Traffic & Advertising	0.730	2.460	1.081
Taxes on Property, Licenses & Franchises	1.429	1.280	1.398
General & Miscellaneous	1.465	2.520	1.679
Total Overhead	7.671	11.170	8.381
GRAND TOTAL	29.897	31.820	30.287



At Manchester, N. H., on the B. & M.

Table III—Average Cost of Operating Buses
(In cents per mile)

Middle Western Systems					
	No. I	No. II	No. III	No. IV	Weighted Average
Annual Mileage	3,000,000	7,960,000	7,600,000	67,000	
<i>Out-of-Pocket Expenses:</i>					
Drivers, Fuel, Lubricants & Garage Service	5.640	5.709	8.079	7.821	6.675
Maintenance of Equipment	5.610	4.995	6.406	2.065	5.661
Depreciation of Equipment	3.390	2.825	3.045	2.783	3.006
Injuries, Damages and Liability Insurance	0.910	0.876	1.060	1.077	0.957
Operating Taxes on Gasoline and Gross Revenues	1.271	0.807	0.811	0.345	0.882
Total Out-Of-Pocket	16.821	15.212	19.401	14.091	17.181
<i>Overhead Expenses:</i>					
Superintendence, Stations & Other Transportation Costs	2.105	2.175	2.655	1.391	2.357
Maintenance & Depreciation of Buildings, Machinery & Tools	0.740	0.701	0.616	....	0.670
Traffic & Advertising	1.690	0.095	0.943	....	0.698
Taxes on Property, Licenses & Franchises	0.334	0.611	0.419	2.649	0.495
General & Miscellaneous	2.010	1.172	3.409	0.645	2.221
Total Overhead	6.879	4.754	8.042	4.685	6.441
GRAND TOTAL	23.700	19.966	27.443	18.776	23.622

Table IV—Average Cost of Operating Buses
(In cents per mile)

Pacific Coast Systems				
	No. I	No. II	No. III	No. IV
Annual Mileage	30,500,000	5,400,000	4,700,000	2,250,000
<i>Out-of-Pocket Expenses:</i>				
Drivers, Fuel, Lubricants & Garage Service	7.401	7.680	9.340	12.800
Maintenance of Equipment	5.418	4.590	3.350	5.770
Depreciation of Equipment	3.652	2.470	1.070	4.210
Injuries, Damages and Liability Insurance	1.025	1.120	0.370	2.530
Operating Taxes on Gasoline and Gross Revenues	1.942	1.010	1.250	2.270
Total Out-Of-Pocket	19.438	16.870	15.380	27.580
<i>Overhead Expenses:</i>				
Superintendence, Stations & Other Transportation Costs	3.963	2.300	0.960	1.580
Maintenance & Depreciation of Building, Machinery & Tools	0.396	0.050	0.170	0.040

Traffic & Advertising..	1.282	1.120	0.360	....	1.093
Taxes on Property, Li-	0.217	....	....	....	0.154
censes & Franchises..	3.246	2.380	1.100	1.810	2.826
General & Miscellaneous					
Total Overhead	9.104	5.850	2.590	3.430	7.681
GRAND TOTAL..	28.542	22.720	17.970	31.010	26.780

As to the cost of operating short-haul and long-haul runs: Each motor coach system has its own definition of the term "long-haul" and very few were able to furnish actual figures segregated between the two classes of service.

For purposes of this report, short-haul runs are considered to be those where the driver makes more than one round trip in a full day's work; all others are considered long-haul.

Table V gives figures taken from those furnished by three of the four reporting systems on the Pacific coast, which, summarized, shows:

	Costs Per Motor Coach Mile		
	Out-Of-Pocket	Overhead	Total
Short Hauls	16.816 cents	7.300 cents	24.116 cents
Long Hauls	20.281	9.265	29.546

Table V—Average Cost of Operating Short and Long Haul Bus Runs on Pacific Coast

	Short Haul	Long Haul
<i>Out-of-Pocket Expenses:</i>		
Drivers, Fuel, Lubricants & Garage Service....	7.538c	7.972c
Maintenance of Equipment.....	4.222	5.593
Depreciation of Equipment	2.763	3.389
Injuries, Damages and Liability Insurance.....	1.125	1.360



Waiting Room, B. & O. Train-Connection Motor Coach Station, Forty-Second St., New York

Operating Taxes on Gasoline and Gross Revenues	1.168	1.967
Total Out-Of-Pocket	11.816	20.281
<i>Overhead Expenses:</i>		
Superintendence, Station & Other Transporta-		
tion Costs	2.916c	3.736c
Maintenance & Depreciation of Buildings, Ma-		
chinery & Tools	0.407	0.607
Traffic & Advertising	1.084	1.295
Taxes on Property, Licenses & Franchises....	0.295	0.490
General & Miscellaneous	2.598	3.137
Total Overhead	7.300	9.265
GRAND TOTAL	24.116	29.546

NOTE: For purposes of this report, short haul runs are considered to be those where the driver makes more than one round trip in a full day's work; all others are considered long haul.

In analyzing the figures given, it is found that two of the items included in out-of-pocket expense are subject to some variation because of differences in management policies: i.e.—

Depreciation rates. Most of the motor coach systems use a five-year life basis, although some of them have adopted mileage basis.

Injuries, damages and insurance. Some of the motor coach systems purchase liability insurance from commercial companies and others self-insure, having their claims handled by the railroad organization.

The overhead expenses of the rail-affiliated motor coach systems are subject to much wider variation, depending upon the extent to which the railroad organization absorbs station

expenses, solicitation, advertising, supervision and administrative expenses. Local conditions govern in each case.

There was no discussion of Mr. Harding's paper.

On the subject "What steps should be taken to regain passenger traffic," W. H. Allison, assistant to general manager, Big Four, and chairman of Regional Committee No. 6, submitted the following report, which was read in Mr. Allison's absence by H. Bertermann, general passenger agent of the Big Four:

To the railroads this is a most important subject and one that has caused great concern; however, it is not new and for several years has been actively considered by passenger traffic officers.

The Motor Coach Section of this division, being interested to know what the railroads contemplate doing to regain passenger traffic, recently addressed an inquiry to various railroads throughout the country. The majority of the lines replied to the inquiry; several did not, and some failed to directly answer the question.

A brief summary of the suggestions is as follows:

1. Experiment with reduced coach fares.
2. Frequent operation of excursions.
3. Importance of high-grade service and equipment.
4. Necessity for improvement in equipment.
5. The importance of regulation for other forms of transportation.

Pending action by the railroad executives, this information is submitted as a progress report.

There was no discussion.

Current practices in connection with the sale of interline motor coach tickets were described in a report by H. Price, chairman of Regional Committee No. 7.

Interline Motor Coach Tickets

By H. Price

Passenger Traffic Manager, New England Transportation Co.

Within the last two or three years, distinct improvements in the construction of luxurious highway coaches have been made, and this equipment, mechanically and otherwise designed to withstand the rigors of long-distance driving, and equipped most comfortably to attract travel, has led to the development of numerous long-distance motor coach lines, resulting in a public demand, as well as concerted activity among the operators, for the sale of through or interline tickets between the responsible motor coach operating companies.

There are two phases to the subject: first, the policy governing the routing of tickets; and second, the mechanics incident to the sales.

Unlike the rail practice of allowing the passenger a choice of companies where more than one company operates, it is the general practice, except at a relatively few union terminals, to route all traffic on the longest possible haul over the companies with which the selling agency or initial company is associated or affiliated. To follow any other procedure would defeat the very purpose of the interline ticketing arrangement as it exists today. This practice tends to limit the number of potential transcontinental motor coach lines. For example, the principal long-distance operators in the railway trunk line territory are: Greyhound Lines, Atlantic and Pacific Stages, Frank Martz Bus Lines, and Nevins Bus Lines.

Unless operators in other territories have working agreements with one of these lines, it is impossible reciprocally to ticket passengers through the trunk line territory; that is, any of the companies referred to will gladly honor an eastbound interline coupon issued by a line operating in the Middle West, but if the latter company is not definitely in the tie-up, or is in any way competitive, it will not receive any westbound traffic in return. These affiliations were originally dictated by the common use of union motor coach terminals, it being understood that except in isolated cases but one company is permitted to operate from a terminal to any given destination, or over any specific route. There is no competition from a union motor coach terminal. The New England Transportation Company, for example, was operating service from Boston to the Waldorf Terminal in New York and subsequently the Greyhound Lines established a route from the Waldorf Terminal to the West. In consequence, and although there were three Greyhound competitors from other terminals at the time, our association is with the Greyhound Lines. This arrangement, of course, eliminated the necessity of a transfer from one terminal

to another, and this is one of the features which tends to popularize interline tickets.

At the outset this plan of affiliation worked out quite satisfactorily. However, with the development of new lines, changes in terminal locations and arrangements, there have been many complications.

While doubtless our motor coach company friends started out with a scientific rate basis for interstate traffic, and while by some companies basic rates are still observed, there is every evidence that as a general thing these bases are non-existent today. For one reason or another, the fares have been progressively reduced, changed or in other manner juggled around, until the point has been reached where it is somewhat difficult to always determine the correct interline fares. Fares in available tariffs are generally somewhat higher than those actually in effect, so that in the absence of current tariffs the penalty is passed along to the passenger.

Naturally part of the success of the development of interline traffic depends upon through rates being readily accessible. Motor coach tariffs, except for the rate condition mentioned, are very complete, and there is no difficulty in determining the interline fare to almost any point in the country. As short line rates have been applied via circuitous routes, in the accepted rail fashion, it is often possible to purchase long-distance tickets at rates substantially less than in combination. These savings are one of the features prompting the purchase of interline tickets. Some motor coach companies, in order to advertise attractive through fares, request the participating lines to reduce their local fares 10 per cent or so on through traffic and thus establish a substantial differential from rail fares.

To more fully publish interline fares, in the interest of traffic development, and to perfect uniform ticketing arrangements, some of the larger motor coach companies have recently formed passenger associations in certain sections of the country. This should tend to stabilize rates and practices.

Interline tickets are not unlike those of the rail lines. It is intended that separate coupons be inserted for each company over which the passenger will travel, and on some of the longer routes a separate coupon for each division. Some companies, rather than provide separate coupons, insert exchange orders on the first or some important junction point, and the passenger is required to present this exchange order at the ticket office to obtain the remaining transportation.

If seat reservations are required, a separate seat check is provided in the ticket or suitable endorsement is made in spaces provided on the coupons.

Some tickets are fully routed over the companies it is intended the passenger should travel. Many tickets, however, merely show the points between which the ticket is valid. In consequence there are many cases where competitive lines honor such unrouted tickets, and I do not doubt actually honor positively routed tickets. Evidently they have no difficulty in obtaining the revenue from the issuing carrier. This practice, incidentally, is not countenanced by the recently formed motor coach traffic committee.

Savings under combination fares are, of course, one of the principal reasons actuating the purchase of through tickets, and this is particularly true on round trip tickets which are sold at 90 per cent of double local. There are other advantages. Baggage may be checked through on many routes; while there is no uniform practice, about 60 lb. is transported without charge. Liberal stop-over privileges are permitted. Generally speaking, no transfer is required between terminals. Delay in repurchasing transportation is overcome. Through seat reservations can be made, and some companies arrange for hotel accommodations at stop-over points. On reduced fare convention or clergy tickets, it is patent that through tickets would be purchased, lines which sell clergy tickets granting about a 25 per cent reduction. In the case of prepaid orders, the sale of through tickets is a natural process.

From the sales angle it is obvious that all local agents are pushing interline sales as a 10 per cent commission accrues on the entire ticket. Some of the companies, to stimulate sales, run contests with cash prizes for the agents making the greatest number of sales.

Divisions

Details of divisions are so complicated that they are not discussed in this paper except as to the mechanics. On rail lines divisions are made on the basis of ticket sales. Thus if a rail line sells a ticket over a specific route and a competitive rail line operating between the same points should honor the ticket, that is just too bad for the competitive railroad as it will receive no revenue unless some optional acceptance, other tariff arrangement or agreement, provides for such a case.

However, the motor coach lines appear to feel that revenue should be divided out on the basis of tickets or coupons honored; that is, a more or less refund arrangement. Bills as rendered must be supported by the tickets honored, and,

therefore, it behooves motor coach drivers to be very careful with interline coupons accepted, since if the ticket or coupon should become lost or mislaid, no revenue can be obtained from the issuing carrier.

This division basis among motor coach companies, particularly when the tickets are unrouted, makes an opportunity for scalping tickets among competitive motor coach lines, who thus receive revenue from tickets not intended for their lines. It is doubtful if responsible motor coach companies intentionally follow this practice, but intentionally or otherwise, it is quite common, whereas on rail lines it does not exist. Likewise, as payment is made only for tickets actually presented with the bills, it may result in building up quite a reserve for some motor coach companies who, by reason of carelessness on the part of their connecting lines, receive no bill for tickets which have actually been sold and presumably used.

We have repeatedly had single coupons presented at our terminal reading from Boston to points in the Middle West and some reading from Boston as far west as Los Angeles. These tickets are absolutely unrouted and without the slightest indication of the amount collected. The coupons have been lifted and a new ticket of N. E. T. company issue, fully routed, is presented to passenger. I have yet to learn of any difficulty in obtaining our revenue on these exchanges. Whether the tickets were intended for the N. E. T. company or whether we correctly routed the exchange ticket will continue to be a mystery.

It goes without saying, of course, that a division based on sales could only be consummated among reputable motor coach companies.

Interline motor coach traffic is as yet comparatively new.



Interior P. R. R. Motor Coach Station at Pittsburgh, Pa.

Practically every line of any importance in the country participates. The mechanics of the arrangements will bear some improvement, and the responsible motor coach companies are working toward that end. If the figures were available, I believe that the volume of this traffic would surprise us. Possibly some impression of the volume may be gained by the exchange between the Peoples Rapid Transit and the New England Transportation Company—practically 6,600 tickets in 13 recent months. As the public becomes more fully aware of the advantages, the volume will unquestionably increase.

While there is nothing tangible to indicate that interline tickets have tended to stimulate motor coach riding, it is quite probable that there has been such an increase. The arrangement has tended to feed traffic to the affiliated companies. The practice of selling interline tickets does result in an increased riding on the responsible motor coach lines in that the passenger is supplied with a ticket and is not entirely "foot loose," so to speak, to use competitive lines. When the coupons are fully routed and the various motor coach companies get together on "settlements," a further improvement should be shown.

I believe most of the railroad motor coach companies have association with so-called independent lines on through ticketing arrangements. This has been necessary as a measure of self-protection, to say nothing of traffic development. Presumably the associations would have been made as between railroad motor coach lines throughout the country following the rail practice, but gaps in certain territories have resulted in the tie-up with independent operators in order to perfect a plan of through ticket sales.

There was no discussion of Mr. Price's paper.

Proceedings of Motor Truck Section

R. K. Stackhouse, chairman of the Motor Truck Section and general superintendent of stations and transfers of the Pennsylvania, took the chair at the opening of the third day's session when reports of the Motor Truck Section were presented.

A report on the "use of subsidiary or contract trucking companies, with published tariffs, which include pick-up and delivery service, the traffic being handled over the rails of the carriers," was read by D. W. Russell, chairman of Regional Committee No. 2.

Subsidiary Trucking Companies

By D. W. Russell

Vice-president and general manager, Southwestern Transportation Co.

Generally, the motor truck has become a really noticeable factor in inter-city transportation within the last seven years, but to a great many railroads only in the last five years has it become either a valuable asset or a very serious competitor. So, thus far, I have not been able to find any railroad that has in any way been able to solve the question of returning to its rails the carload freight that is being and has been taken by the trucking companies, as all experiments so far have been toward regaining l.c.l. tonnage.

In discussing the matter with many railroad men, it appears that there are several things uppermost in their minds as to the use of motor trucks by the railroads as a defense against the independent. First, few trucking companies are making any money. Second, a great many of the trucks are operated by individuals at a very low cost, compared to what the cost would be to the railroad, and it is doubtful if the railroad could compete with the rates they charge. Third, would this merely be a step by the railroads to begin rendering—though subsidiaries or directly—a service that would not receive comparable return or increase in rate and which would, therefore, result in a net loss? Fourth, can the trucks in any way be used to bring back to the railroads the business that has gone to the independent, and if so, can it be done at a profit?

The first railroads in the United States to use motor trucks to any extent were New England railroads. Store-door delivery through a subsidiary appeared next on the Pacific Coast. At present the greatest development is in the southwest. In the east we have the Boston and Maine, which operates through its subsidiary, the Boston and Maine Transportation Company. Then we have the New England Transportation Company, which is a subsidiary of the New Haven. Between these operations and the Mississippi river, there seem to be no other railroads using trucks except for station-to-station service. In the central northwest, we have

the Chicago, St. Paul, Minneapolis and Omaha, operating through its subsidiary, the Wilson Transportation Company. The Chicago, North Shore & Milwaukee electric line, while not in actual store-door pick-up and delivery service, is using a form of truck service. In the southwest we have the Missouri Pacific, the Texas and Pacific, the Missouri-Kansas-Texas, the T. & N. O., the Louisiana and Arkansas, with its subsidiary, the Louisiana, Arkansas and Texas, and the St. Louis Southwestern. In the west we have the Southern Pacific, and in the northwest we have some lines, including electric lines, from whom I have not been able to get data.

Different Methods

There are at present several different methods being used or experimented with in attempting to solve this problem. We have first that used by the Omaha through its subsidiary, the Wilson Transportation Company, which is a straight trucking proposition and has been thoroughly covered by Mr. Gray's report contained in the proceedings of the June, 1930, meeting.

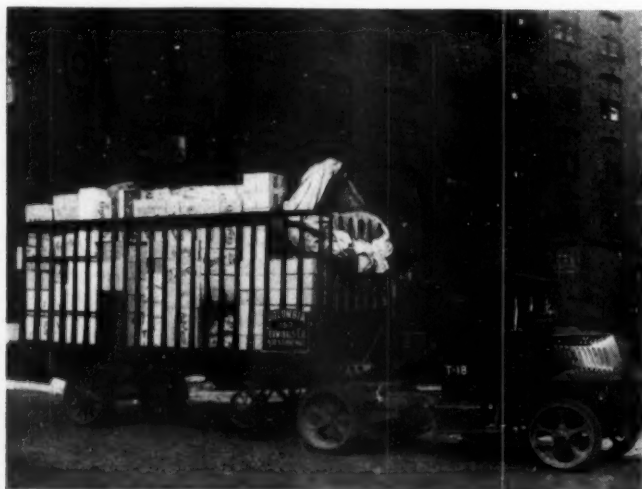
Second, we have the method used by the Chicago, North Shore & Milwaukee, which does not give store-door pick-up and delivery but does spot semi-trailers, which might be classed as containers, at either the consignor's door or the consignee's, and handles at materially reduced rates shipments with a minimum weight of 6,000 lb. The consignor loads and the consignee unloads, there being no handling or checking done by the North Shore. The tariff does not provide for spotting the trailer at both consignor's door and consignee's door; either one or the other must load or unload the trailer at the company's station. The North Shore reports an increase in business and a material increase in net. Through this method, the trailers are handled by tractor from either their station or the consignor's platform to the yards and loaded on special flat cars. At destination, the tractor removes the trailer from the car, spotting it either at the railway platform or at the consignee's platform. The service of the North Shore ends when spotting is done. The rates are based on a flat rate regardless of classification, and apparently with more regard for the rates being charged by truck companies than any other basis.

Third, we have the system that is used with minor variations by the Missouri Pacific, the Texas & Pacific, the Southern Pacific, the M.-K.-T., the L. & A. and the L. A. & T. Under this method, the railway subsidiary does not own equipment of any nature and has very few, if any, separate employees, but contracts for all pick-up and delivery service with local transfer men in the various towns. L.c.l. shipments are picked up at the consignor's door by the contractor of the subsidiary and handled to the freight house of the railroad. The subsidiary's bill of lading is issued either at the point of pick-up or at the depot. This freight is then checked, handled, loaded and rated by railroad employees. It moves in cars which in most instances would be moving anyway to the break-bulk point. It is there checked by the railroad employees to the subsidiary's contracting transfer men, who deliver it to consignees. There are several different kinds of contracts in effect between the various transportation companies and the railroad companies, covering the services performed by the railroad. In Mr. Neff's report at the meeting in Atlantic City, he covered the operation of this type of transportation company, and also gave the type of contract existing between the Missouri Pacific and the Missouri Pacific Transportation Company, which is that the transportation company will pay to the railway company 101 per cent of the fourth class rate on all shipments handled. This leaves the difference between 101 per cent of fourth class rate and the class rate actually collected as the revenue of the transportation company. This 101 per cent of fourth class covers all handling, billing, etc., performed by the railroad. This, I think, is typical of this type of operation.

Southwestern's Methods

Fourth, we have the operation of the Southwestern Transportation Company, owned by St. Louis Southwestern. The Southwestern Transportation Company's operations are a combination of all the operations covered by the first three groups. The Southwestern Transportation Company operates motor trucks over the roads paralleling a majority of the rail lines of the St. Louis Southwestern.

We found that we could not secure what would be practically exclusive franchises unless we served all the small towns along



Tractor and Trailer of the Columbia Terminals Company, St. Louis

our lines, and unless we absolutely rid our lines of the small independent truckers, the rate structure as set up by the Arkansas and Texas commissions could hardly be enforced, as the small truckers had no records, offices or bills of lading. When we entered the field there were forty-three competing truck lines. Today, there are nine. We have bought numerous lines, but with the exception of two have bought them at a fair price.

Intrastate in Arkansas, with the exception of one line which operates over a different highway, we do not have motor freight line competition to any of our points. In Texas this is true with the exception that there are three companies remaining. Interstate from Memphis, we have five lines competing with us. These lines, of course, do not have regulated rates. With the exception of one, they are all small, and until such a time as rates are regulated we do not expect to have the success we have had in intrastate business. However, on other interstate movements, we have been able to agree with competing operators and are charging the same rates as they are.

The Southwestern has two objectives: First, to put back on the rails, in trains and cars already moving, the l.c.l. tonnage which the Cotton Belt lost to trucks in public and private service; second, to perform for the railroad services that would allow the railroad to remove more costly services. The first objective has been reached. The freight of the transportation company now handled by rail equals the amount lost to trucks by the railway. Approximately seventy per cent of the transportation company's freight moves from city of origin to city of destination by rail. We are performing station-to-station service on a number of branch lines and on sections of the main line. Through this service the railroad has been able to remove completely one local freight train operation, to curtail the mileage covered by others, and at other points to do the work between given points with fewer crews and without overtime, by extending the mileage of locals.

Rates Stabilized

When the transportation company started operations in Arkansas, there was a statute providing that the railroad commission would fix the maximum rates of freight lines. We soon found that this meant exactly nothing. A rate would be filed and the motor carrier would handle for any amount less than he desired, which resulted in a continual process of bargaining for the business and virtually left the shipping clerks and traffic managers as rate dictators. Through the co-operation of many firms, there was passed through the last legislature a bill which ordered the railroad commission to prescribe the actual rates. As a whole these rates are being followed; however, as stated above, it is practically impossible to regulate the small truck operator, that is, the man with one or two trucks. It is further practically impossible for the small operator to use rail rates, as the classifications are so complicated that they are not qualified to classify this freight. The result is that, as we see it, when the small operator competes with you, you are continually before the commission with complaints and at the same time you are continually losing business on a cut-rate proposition. We decided that there were a great many points to which we could not move rail cars overnight in time to compete with trucks, that there were many places where it was advantageous to the railroad to have the transportation company do station-to-station service, that there were other places where all passenger trains had been removed so that it was necessary to put on a truck to handle mail, express and baggage, and in still other places, after certain passenger trains had been removed, that in order to keep from making through passenger trains local passenger trains it was necessary to handle mail, baggage and express to the smaller stations for the railroad. In the cases where all trains had been removed, the transportation company contracted directly with the Post Office Department for the handling of this mail, handling express for the account of the railway company in all instances and baggage for the account of the railway company. On the main line where mail is distributed from larger towns to smaller towns by truck, it is handled for the account of the railway company, there being no separate contracts between the Post Office Department and the transportation company.

In Texas, specific rates and regulations for motor carriers went into effect June 12, 1929. Both Texas and Arkansas have prescribed rail rates and short-line mileage, except when the highway distance is twenty-five per cent different from the rail mileage; then the shortest mileage, whichever it is, is used. In only a few instances does the transportation company operate more than one round trip daily over the same highway. In some instances we operate alternate day service



Motor Truck at Cotton Belt Freight Station

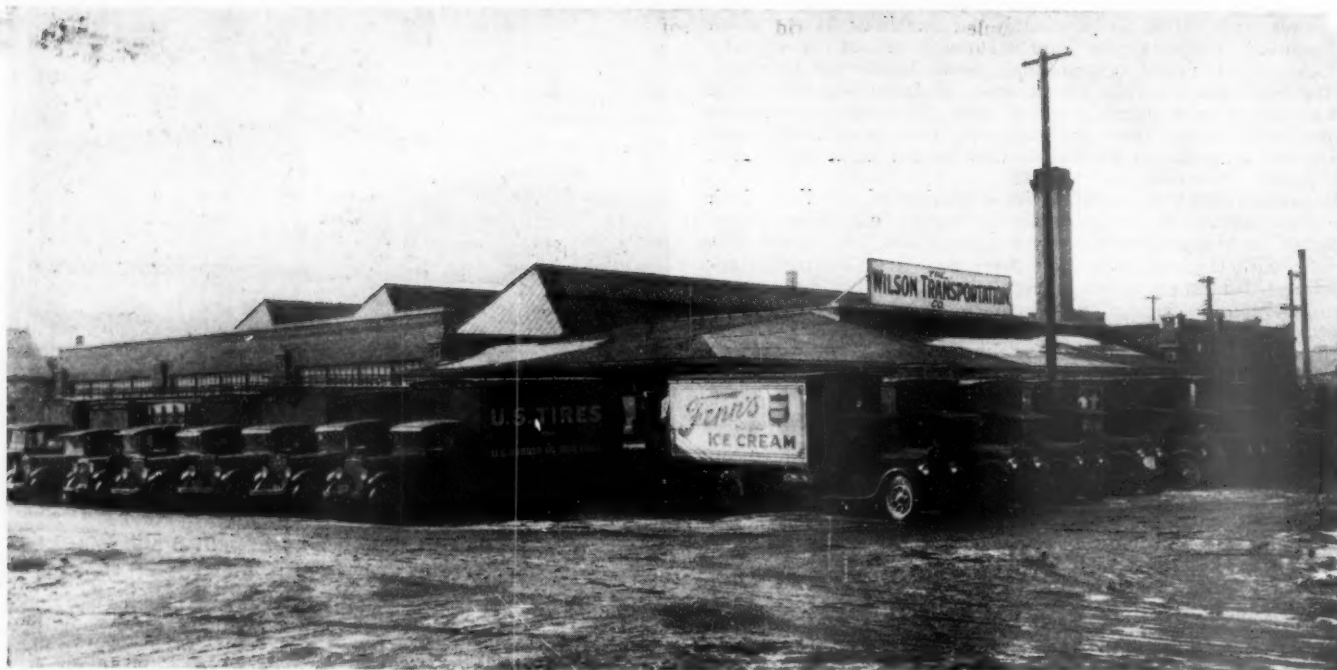
with local freight trains, co-ordinating the schedules so that double daily service is rendered for both the railway and the transportation company. It is necessary to render daily services by truck to preserve the franchises. This arrangement works to the benefit of both the transportation company and the railway, as it reduces the mileage of each.

Small Organization

In group three, a very small separate organization, if any, is used. As operated by the Cotton Belt, they have seen fit to use practically an entirely separate organization. We have experimented with "co-ordinated solicitors," that is, railway solicitors doing all soliciting for the railway and the transportation company, and in no instance has this proved entirely satisfactory or have we been able to get the volume of business that we get with men dependent wholly on l.c.l. business for their showing.

It is generally said, in discussing the handling of freight by motor trucks, that handling is eliminated; that is, that the truck goes to the shipper's door and delivers to the consignee's door. We find that this is true only in very small towns on routes where the truck goes out from the shipping center and returns the same day, and where the run even in our sparsely settled territory does not exceed thirty-five to fifty miles per day, and where the total gross tonnage does not exceed five or six thousand pounds. Where through freight is handled by a system such as ours, with big road units, it is not possible for several reasons to allow the line truck to pick up and deliver. First, the truck is too big to get into alleys, through the congested traffic in shipping districts, or to economically make time in pick-up work. Second, if the truck is to deliver all of the merchandise at various towns, it is hardly possible for it to cover over forty or forty-five miles per day. Third, it is not possible to pick up and load one of the big trucks in station order, let alone delivery order. I mean by "big truck," one handling five to six or eight tons. We have not only found it more practicable but also more economical to put in either our own pick-up service with small trucks or to contract for the pick-up and delivery work. In this way, we lengthen the mileage of line trucks so that they can make from ninety to one hundred and fifty miles on line per day, and thus speed up the service. This, however, necessitates approximately the same handling of freight that would be necessary when the freight was handled as straight railroad freight.

As to station handling, at some points the entire work is performed by the railroad for the account of the transportation company. At other points, the physical handling is done by the transportation company and the billing and rating is done by the railroad. At others the transportation company performs all its services. This is governed largely by the size of the station and its hours of operation, and whether or not the transportation company performs its own pick-up and delivery service. In some towns all pick-up and delivery is by contract. In this case the man handling the motor trucks under contract ends his duties when freight has reached the platform and begins them at the platform's edge. At other places, the Southwestern has its own pick-up drivers and uses them as truckers for loading into cars or trucks. Our entire proposition is based on using the most economical method at



Loading Trucks at the Sioux Falls, S. D., Terminal of the Wilson Transportation Company, Omaha Subsidiary

each station—not one plan for the entire system. We have found that at a great many places, it is absolutely necessary to keep receiving freight houses open as late as 6:30 or 6:45 p.m., in order to compete with competitive freight lines. Where this is done, unless it is a large station, it requires overtime for truckers and other men employed by the railroad. All of this must be taken into consideration in figuring out how a station is to be handled.

Rail Facilities Used

To most of the small towns, we render one truck service daily. We have trucks leaving the distribution centers at 10:00 or 10:30 a.m., working intermediate points and the larger towns at the other end. At night we move a car between these same two towns, loaded with freight which is delivered early next morning, effecting double daily service at some points. When we began the trucking service, we found that various companies were running four or five daily schedules over some routes. In no instance do we have over two services—one by truck and one by rail. We have been able to satisfy both shippers and receivers with this, and to our knowledge we do not have a warranted complaint on our lines today. As fast as a line is developed, we attempt to work out a method or way to handle traffic by rail, and in practically all instances we have been able to handle more than one truck's capacity by rail. This immediately means that you drain your truck of everything possible and deflate your truck earnings, but at the same time you inflate the earnings shown for rail movements. To figure out the final result, it is necessary to take the whole picture into consideration. First, what would you have without the truck if truck competition on that line became acute? Second, what would the earnings be if the freight were handled entirely by truck? In this way, you arrive at a basis of operation.

In our territory the chain stores and wholesale grocers either use their own trucks or contract haulers to move their goods from warehouse to stores in other towns or to branch houses in other towns. This business cannot be had at rail rates nor can it be had on any basis that makes it necessary to crate, list or mark each package. We have, therefore, developed a service by which we spot a four-wheel trailer, with a body approximately 16 ft. long, 7 ft. wide and 6 ft. high. At the chain store or wholesaler's warehouse, they do the loading and sealing. We merely move to the store at destination. They do the unloading. We are only responsible for wrecks, fire and water damage, or theft in the case of broken seals. For this, we collect the fourth class rate, regardless of the classification of the merchandise in the trailer. This in effect is the same as is done by the North Shore. The big difference is that we do not require special flat cars necessitating the return of empties. The trailers are moved back over the highways behind regularly assigned operating trucks, thereby eliminating any dead-head mileage. This, of course, would

not be possible should the volume of business increase materially; however, we find that in our present plan of operation, there is more net in this business owing to the elimination of checking, handling and delivering and shortages than in any other business we have, regardless of rate, and believe there is sufficient net to allow empties to be returned on flat cars. We believe that, with the system as used by us, the reason we have been able to whip the small operators as we have is: first, absolute competition with them to all points; second, positive dependability; third, financial responsibility; fourth, immediate and sure return of C.O.D. collections; fifth, quick settlement of claims. The Southwestern Transportation Company will not handle shipper's order bills of lading. We do not propose to furnish storage of any nature except in the case of refused goods which will be returned to the shipper three days after notification of refusal.

Through the entry of various railroads through subsidiaries into the store-door delivery business, freight rates have actually been raised to a higher level. We found on entering this business two years ago that a great majority of lines were only getting as much as rail rates and most of them below rail rates, usually on a flat-rate basis. Today the flat-rate basis is gone except with one or two lines operating interstate on comparatively short hauls. After the first year, the shipping public has supported us almost 100 per cent and is glad to see the old irresponsible and financially unsound lines go.

In summarizing these experiments to date, Mr. Gray's report shows that they are entirely satisfied that they have an operation profitable in itself and of value to the railroad. The North Shore reports that it has brought about an increase in traffic and an increase in net. The report of Mr. Neff of the Missouri Pacific states that, while there has been an increase in tonnage, they have not been able to determine whether or not this is offset by the increase in expenses. However, this is a particularly hard time to tell owing to the general decrease in business. Mr. Huffman of the Texas and Pacific reports that operations to date have been entirely satisfactory, and that they are extending the operation of the transportation company over the entire Texas and Pacific system. As to the Cotton Belt, our freight operations have proved profitable and even through this depressed time are profitable. It is hardly possible to definitely determine just how profitable, but we can determine that they have been profitable to both the railway company and the transportation company as a joint operation. The Southwestern and the Cotton Belt expect by constant study to more completely coordinate the operation and effect additional savings as the co-ordination is perfected.

Discussion

In response to a question, Mr. Russell stated that the level of motor truck rates has been raised and stabilized

by legislative action in Texas and Arkansas. He stated it as his belief that motor truck rates should be greater than railway rates. He said that the fact that the railways in Texas and Arkansas were engaged to a substantial extent in motor vehicle operation has been largely responsible for the passage of the rate-regulating legislation in those states.

The Cotton Belt, Mr. Russell said, had lost 80 per cent of its l.c.l. freight traffic before operations of the Southwestern Transportation Company began. Since that time its l.c.l. traffic has declined only a little more. The transportation company on the other hand handles 15 per cent more freight than has been lost in recent years by the Cotton Belt. Seventy per cent of the transportation company's traffic moves by railway for the entire length of intercity hauls, the balance moving either entirely by truck or by a combination of rail and truck hauls. The transportation company's business has increased in every month of this year except April.

Asked as to the handling of contract truck operators in his territory, Mr. Russell said that in Arkansas a man can haul for three shippers and still be contract hauler with no regulatory restrictions. In Texas, Class A carriers are regulated while Class B carriers are not regulated as to rates and service, Class A carriers being those which make as much as one trip a week over a given route. The first need is legislation to regulate the motor truck lines according to Mr. Russell, and the second is for railways to meet the competition of truck operators in every respect and to anticipate it where possible.

C. E. Thompson, vice-president of the Chicago, North Shore & Milwaukee (electric), described the truck operations of the North Shore Line, involving a variety of uses of tractors and trailers which have brought to the North Shore Line an increased volume of traffic and traffic which is handled at a profit.

Taxation and Regulation

Prior to the adjournment for luncheon, F. C. Horner, assistant to vice-president of the General Motors, Corporation, spoke briefly on the subject of what stand the railways should take with respect to the taxation and regulation of weights and dimensions of common carrier

motor vehicles. He urged the railways to consider the purpose of taxation and regulation of this kind. Public demand will compel a much larger use of motor vehicles by the railways in the future. The public, he said, will not permit the throttling of motor transportation by excessive taxation and regulation. Although taxation and regulation of motor vehicles has progressively become more stringent in recent years, motor transport has nevertheless shown a phenomenal growth during the same period, indicating that motor transport cannot be eliminated by increased taxes and more rigid regulation.

Mr. Horner was followed by Edward F. Loomis, secretary, National Motor Truck Committee, National Automobile Chamber of Commerce. The railways must go into motor transport operations on a much larger scale in the future, Mr. Loomis said, and he urged that railways and motor vehicle interests co-operate in meeting the problems of higher taxes and strict regulation with which both the railways and motor vehicle interests are faced.

A report on shipping containers, written by W. C. Glynn, chairman of Regional Committee No. 7, was read by F. J. Carey, manager Motor Truck Service, Boston & Maine Transportation Co.

Use of Shipping Containers

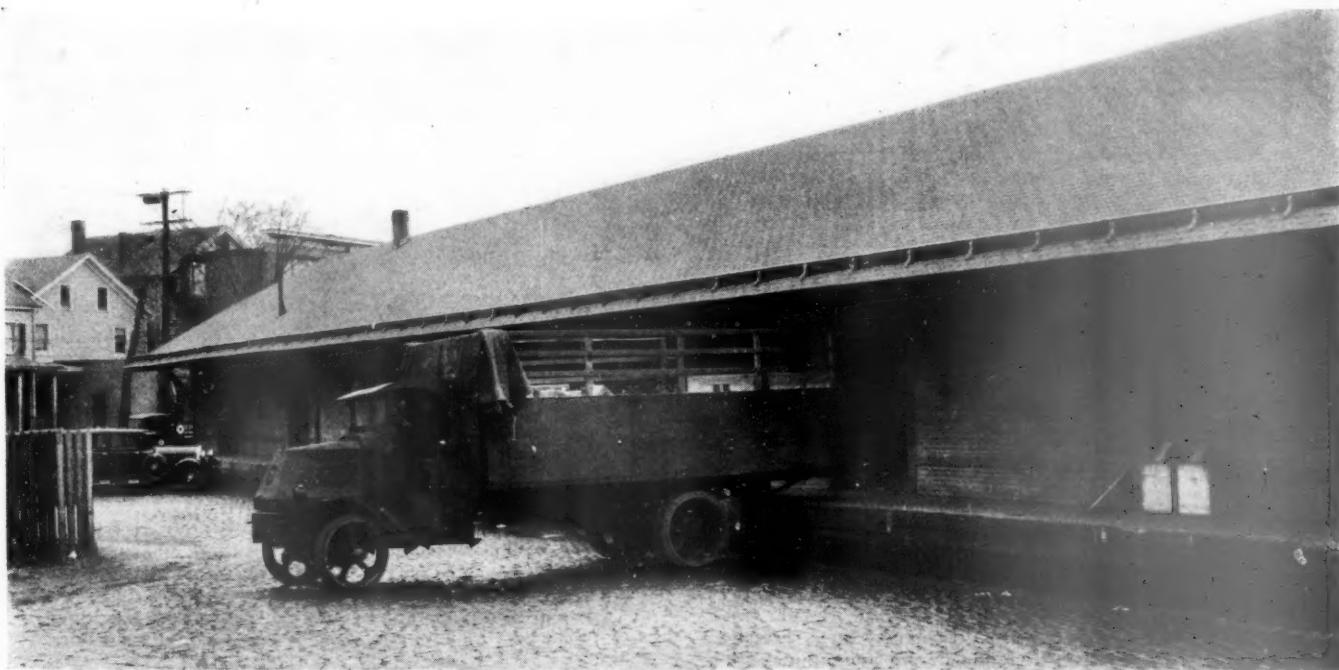
By W. C. Glynn,

Assistant to General Traffic Manager—Freight, Pennsylvania

The container car service is, in railroad parlance, usually divided into two separate and distinct parts: First, where the containers are utilized by the railroad in replacement of or in lieu of freight cars; second, where the containers are used between store-door and store-door. With the first phase, we are not immediately interested, as it involves a part of railroad operation in which the Motor Transport Division is not primarily concerned; the second feature, however, involving the trucking of containers between railhead and store-door, is the one that naturally comes before us.

Types of Containers

While various types of containers are frequently mentioned, including (1) the steel merchandise container, (2) the bulk



Motor Truck Operated Under Contract for New York Central at White Plains, N. Y.

container, (3) the truck body type, (4) the marine type, etc., the steel merchandise container is probably the only type that may be safely said to be annealed to the point where it is about to be accepted as an economic transportation unit by both the shipping and receiving public and by the railways.

The merchandise or freight container is an instrumentality designed, among other things, to facilitate and reduce the cost of handling less-than-carload freight. The function of the truck is the collection and distribution of freight within the terminal zones, and the rail line is used for the long inter-city hauls, which the railroads are able to perform with greater efficiency, dependability and economy than trucks operating on the highways. This feature permits an ideal co-ordination of rail and motor truck services, and it is here that the motor truck reaches one of its most effective roles as a commercial carrier.

The container was a natural outgrowth of modern and efficient business methods. A noted economist recently pointed out that the cost of transportation between a consignor and consignee usually consists of (a) transportation to and from the railroad, (b) packing, (c) actual freight charges which include (d) freight on tare; this same authority has stated that the actual railroad transportation is frequently not more than 10 per cent of the cost of the total shipping expense, the balance being made up of the items mentioned under (a), (b) and (d). While not vouching for the accuracy of this estimate in its entirety, it is unquestionably true that the container, with its more moderate packing requirements, and its integration in rail-truck service, is a distinct instrument in cutting down transportation costs; and, in this wise, presents a valuable ally to the railroad in preventing further attrition of their traffic, and in reducing the cost of transportation to the public.

The containers in use on the eastern railroads of the United States are of virtually the same cubical content and load capacity, with many interchangeable features, so as to facilitate passage from one railroad to another. The outside dimensions of the steel shipping container for merchandise freight used on the Pennsylvania are 7 ft. wide, 9 ft. long, and 8 ft. high; its capacity is 440 cu. ft. and the average lightweight is 3,000 lb., with a load capacity of 10,000 lb. It is entirely probable that as experience grows, the tare weight of the container may be reduced by use of lighter material, and without impairing the payload. This will progress as study dictates.

Container Advantages

While such container service is only in effect in a rather restricted area on several of the eastern trunk lines, some of the advantages of container service to shippers and receivers have been found to be the following:

1. An economical, dependable and reliable service.
2. Economy in preparing shipments for transportation.
3. Elimination of loss and damage—a great benefit to patrons.
4. Expedition of traffic in keeping with the needs of modern commerce.
5. Providing complete transportation from originating store-door to store-door at destination.
6. A movement toward flexibility of equipment, and an attempt to fit equipment to the business offered.

Patrons, for example, may have the choice of such services as these:

- (A) From originating store-door to destination store-door, relieving both shipper and consignee of trucking.
- (B) From originating station to store-door destination, thus permitting the consignor to truck the containers or the freight.
- (C) From originating store-door to destination station, thus permitting the consignee to truck the containers or the freight.
- (D) From station at point of origin to station at destination, thus permitting both consignor and consignee to truck the containers or the freight.

Patrons of the container car service, who wish to be relieved of all or part of the trucking service, may conceivably avail themselves of trucking concerns equipped to handle this traffic. Such organizations collect shipments at various points of origin by making day-to-day calls with containers carried on motor trucks. When the containers are loaded, they will be transported to and placed by cranes upon container cars awaiting them at the designated stations, and then will be moved through to destination on scheduled freight trains. When containers arrive at their rail destination, such trucking concerns may, for consignees who so desire, take possession of the freight and deliver it to the consignee's door.

In practice, when a patron desires to use container service, he applies to the railroad freight agent for empty containers. The containers are placed on motor trucks or trailers by crane and moved to the shipper's place of business, where they may be

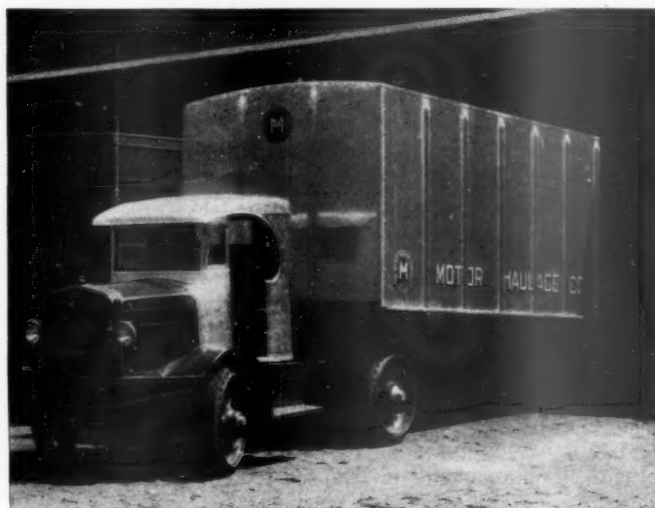
loaded without removing the containers from the truck. If, however, crane facilities are available, the container may be removed from truck or trailer and placed in a convenient position for loading. After loading is completed, the container is locked or sealed and returned to the rail terminal, where it is again lifted by crane and placed in position on the container car for rail movement. At destination, this procedure is merely reversed.

While the advantages to the public have been visualized, the containers are expected to prove of great value to the railroads in eliminating the handling of freight, and cutting down the number of car units for movement on the rails.

The Future

In this brief outline, we have shown some general facts in connection with the merchandise container; the present outlook for the future is somewhat obscured by certain factors, among which are:

- 1—Uncertainty as to the final decision of the Interstate Commerce Commission in connection with the investigation which it has conducted of the container service; the matter of compensation to the railroads for such service is of paramount importance. It can stifle or encourage the new service.
- 2—There are some who feel that the full integration of rail and truck cannot be accomplished unless the railroad



Motor Haulage Company Truck in Long Island Highway Freight Service

directly performs the terminal or store-door service. This is a topic warranting serious study, as already outlined at previous meetings of the division. Undoubtedly, the general investigation instituted by the Interstate Commerce Commission as to the corporate relationship between trucks and carriers may clarify this feature.

With these two potent problems solved, it is probable that the container service will find a much improved prospect as, if the principle is fundamentally sound, it will move irresistibly and universally.

Questions for Consideration

It is suggested that the Motor Truck Section follow closely the trend of developments on the various railroads and in the industrial field, giving consideration to such questions as these:

- (1) Is the roll-off type of container preferable and more practical than the stationary type, or vice-versa? Is it conceivable that both types may be well justified? Are other types, such as the skid type or monorail type, of material value?
- (2) To what extent may containers be used in transportation of bulk freight, economically and efficiently? Type of containers to be used? Size? Commodities that could be accommodated?
- (3) Is the use of duralumin or other light metal justified by the usually increased cost of such container construction?
- (4) What is the relationship of the cost of constructing, maintaining and transporting steel containers, to the

railroad earnings, bearing in mind the tare weight of containers, crane handlings, and other extraneous factors?

- (5) To what extent may the number of freight stations in large centers, by use of a truck-container plan, be profitably and efficiently curtailed? What are the controlling factors to be considered?

Of interest in connection with container service is the ferry truck, or trailer service of the Chicago, North Shore & Milwaukee, particular attention being directed to the service between Chicago and Milwaukee, where l.c.l. freight from one consignor in lots of 6,000 lb. or more is handled in ferry truck service consigned to a single industry, and delivered at the door of such industry at a charge of 5 cents per 100 lb., in addition to the established l.c.l. freight rates, the minimum charge of the delivery service being \$3.00 per ferry truck. The trucks are to be loaded or unloaded by consignor or consignee. After the trucks have been loaded, they are taken to the North Shore Line, where they are loaded on specially constructed flat cars which accommodate three ferry trucks, and are carried to their destination. This ferry truck or trailer service is available to all shippers and receivers of freight in both Chicago and Milwaukee, and we understand results in a saving in rates, packing, cartage and time.

These angles are merely pointed out as indicative of the ramifications of the subject, and the need for intensive study and co-operation.

Discussion

In the discussion of Mr. Glynn's paper, it was pointed out that a large proportion of the tonnage now moving in containers is freight forwarded by carloading companies. No information was available as to the extent of the diversion of first and second class freight to the containers under the container tariff. With regard to a question as to the ability of the container to meet highway competition, it was stated that the results thus far have not been particularly satisfactory, but that the rates are the paramount issue, and that when the rate situation has been cleared up new fields for container operation will open.

A report on "engagement of the carriers in over-the-highway motor truck transportation" was read by M. F. Steinberger, chairman of Regional Committee No. 6.

Truck Operation by Railways

By M. F. Steinberger

Manager, Highway Transportation, Baltimore & Ohio

Generally speaking, it is possible for the railroads to engage in operations over the highway, at least, from a physical standpoint, in the following ways:

1. In replacement of local freight trains.
2. In handling their own stores department, motive power department and other departmental material.
3. In handling freight between main and substations in large communities.
4. In handling freight between their own and other railroad stations in various communities.
5. As independent hauling concerns engaged in a general hauling business, either in one community or between communities.
6. In handling freight between shippers' or receivers' doors and freight stations.

In this paper, comment will be made upon the above plans in the order in which they are listed.

1. This subject has been discussed on previous occasions. The Pennsylvania and New York Central to a considerable degree, and certain other roads in a few cases, have been able to eliminate local freight trains and substitute motor trucks. The two roads mentioned have done most because they have operated independent package locals as well as carload switching locals. With this condition and a condition of roads generally paralleling their rail lines, it has been comparatively easy to replace the package locals with motor trucks. Other roads which operate on a basis of having their local trains do both carload and less-carload work have found that the substitution of motor trucks would not save enough crew time to justify their cost of operation. It seems to be accepted as axiomatic by

those who have had some experience in this direction that one local train must be removed for each set of two trucks put in operation. The prime consideration in installations of this sort has been the operating savings which can be effected. There are in some cases traffic benefits to be derived. However, as these installations are station-to-station operations, and do not include any provision for store-door delivery and receipt, they are not serious factors in the effort to regain to the railroad freight being lost to motor trucks.

2. There is little to be said concerning the second item. Obviously, wherever a railroad can economically handle its own material by motor truck, it will do so. Such action has no bearing on the broader aspects of the situation under discussion.

Terminal Transfers

3-4. Certain roads use motor trucks for the transfer of freight between their own stations in the same community, or between their own stations and those of other roads. This procedure is adopted for the purpose of securing operating economies or expediting the movement of freight, and study of individual cases is necessary to determine the merits of any proposal to establish such service.

5. A few roads, such as the Cotton Belt, the Missouri Pacific, the Southern Pacific, the Omaha and others, have either organized or obtained control of motor truck operations, which provide for over-the-road service, in certain cases, by these companies. The Omaha, for instance, is interested in a cross-country trucking operation which saves time and money as compared with a round-about rail movement. Certain of the other companies will give an over-the-road service under definitely stated conditions. In addition, some roads are interested in or own trucking companies which operate in large cities on the same basis as any other public drayman.

6. Through the medium of these railroad subsidiary trucking companies, it is possible at certain places to get the equivalent of store-door delivery.

It may be said, however, that despite the experiments being conducted here and there by the various roads, there has been no general policy established as to what the railroads can do with respect to trucking over the highways. There is still the battle as to whether store-door delivery and collection shall be given, whether at present rates or additional rates, where railroads can directly provide a service which a few are attempting to provide indirectly.

It would appear that the railroads are just beginning to wake up to the serious menace to their revenues which lies in the use of motor trucks by independent truck operators of all kinds. A proper conception of the functions of the motor truck and the railroad, together with regulatory action on the part of public authorities as to rates, taxes, and dependability of service, would successfully solve the problem before us.

There was no discussion of Mr. Steinberger's paper.

Southern Pacific Operations

Shortly before the close of the meeting, W. A. Worthington, vice-president of the Southern Pacific, described briefly the operations of the Pacific Motor Transport Company. This subsidiary of the Southern Pacific, operating as an express company, is a medium through which shippers and consignees are provided store-door collection and delivery service on shipments which are moved between terminals by rail. According to Mr. Worthington, the present operations of the Pacific Motor Transport Company are intrastate in character, the operations covering parts of California, Oregon and Arizona. Interstate service will shortly be performed also, crossing the state line between California and Oregon and that between California and Arizona.

The Southern Pacific is using the Pacific Motor Transport Company as a means of meeting the keen competition of independent motor truck lines in its territory. There is little regulation, said Mr. Worthington, of the truck lines operating in Southern Pacific territory. There is no regulation in Oregon, and only 10 per cent of the motor truck lines operating in California are franchise carriers subject to the jurisdiction of the Railroad Commission of California. Mr. Worthington stated that the motor transport company's business has been increasing each month and he expects that a larger volume will be handled when the rate situation is cleared.



The Running Repairs Department at Texarkana Is in the Main Shop Building but Separated from the Heavy Repairs Section

Southwestern Builds Modern Maintenance Facilities

Rebuild shop at Texarkana—Running repair shops at Texarkana and Tyler—Arrange for efficient handling of equipment

By Elmer A. Stuck*

Architect, Little Rock, Ark.

BUILDINGS for the maintenance of motor freight and passenger equipment were completed last year at Texarkana and Tyler, Tex., for the Southwestern Transportation Company, a subsidiary of the St. Louis Southwestern. Much time, study and consideration were given to the planning of these buildings, as well as to their location on the properties selected for their erection, to economy of construction, and to convenience of operation. There are probably more departments included in the rebuild shop at Texarkana for the complete care of motor coaches and trucks than would be found in the typical garage as generally thought of. Possibly the largest problem, aside from the planning of the buildings, was that of arranging for the efficient handling of the equipment in the driveways about the buildings.

The program at Texarkana contemplated buildings suitable to take care of repairs of all kinds for the entire system, together with the care of all equipment running in and out of Texarkana. The Tyler layout is secondary to that at Texarkana and contemplates

only the servicing of equipment in that territory. Major assemblies are removed and replaced at Tyler, the damaged assemblies being sent to Texarkana for repair.

The rebuild shop is located at Texarkana, and in this building, covering approximately 27,600 sq. ft. of floor space, all on one level, are departments for general repair, machine shop, wood working, parts, upholstering, electric shop, blacksmithing, motor testing, painting and office space. Also housed in this building is the running repair shop, which is distinctly separated from all other departments and has access only to the parts department. All of the above departments are so arranged in plan that they are interrelated.

Construction of Rebuild Shop

This building is of fire-resisting construction, with reinforced concrete floors, exterior walls of brick, steel roof trusses spaced 14 ft. 6 in. on centers and 14 ft. clear space between bottoms of trusses and the floor, steel roof deck sufficiently insulated against heat and cold, and a 10-year guaranteed, built-up roof. All openings in the exterior walls are as large as possible and are

* Mr. Stuck designed and supervised the construction of the facilities described.

filled with stock size factory steel sash and glazed with rough wire glass. All inside partitions are covered with a fireproof material and extend to the under side of the roof deck where complete isolation is required. The parts department enclosure is of coarse mesh, heavy wire screening running from the floor to the under side of the roof deck to prevent thievery. This wire screening is erected in sections and may be moved and used in other parts of the building as desired.

Additional natural light is obtained by means of a number of large skylights in the roof. Ventilation is accomplished by large ventilators in the roof and by a large number of openings in the steel sash. A complete system of overhead rails, with chain hoists mounted upon them, makes it possible to move all assemblies and motors with ease to any part of the building. Clear floor space for all major operations was obtained by grouping the smaller departmental spaces around the single row of steel columns, obviously necessary because of the excessive span of the building. The exterior of the building is of a strictly commercial design and plainly utilitarian.

Depressed Pits

Possibly the most interesting feature of the general repair department is the depressed work pit. The four work pits in this department, 30 ft. long, 2 ft. 8 in. wide, 4 ft. 3 in. deep, and spaced 14 ft. on centers, have one end opening into a large pit of the same depth and 6 ft. by 68 ft. in area. This arrangement makes it possible for the mechanics to remove any cumbersome assemblies or parts from beneath the trucks or motor coaches, carry them to the open end of the pit, place them on the hoist which is directly overhead, and deliver them to any of the departments for repair. This type of pit also precludes the necessity of losing a lot of valuable time in jacking or blocking up to get to the parts to be removed. The pit is equipped with work benches and all necessary electric and compressed air outlets for the operation of power tools. The work pits which open into the depressed pit are so constructed that a temporary wood floor may be placed over them, and this adds to the convenience by making additional floor space available when necessary. It also adds to the ease of moving equipment into position over the pits without using a great amount of floor space for the operation. This particular type of pit has been very satisfactory in operation.

The running repair shop, a part of the shop building has accommodations for five pieces of equipment and contains two greasing and two work pits. All pits, both in the general repair department and in the running repair shop, are equipped with eight electric light pockets with tool shelves, staggered alternately on each side of the pit. Other equipment includes electric convenience outlets and compressed air lines with a number of outlets. The grease pits have, in addition to the above, grease lines with several outlets. All pits have large drains with trash buckets in them to prevent the stoppage of the drain lines.

The Paint Shop

The paint shop, while an integral part of the building, is separated by means of fire doors as required by the fire underwriters. It has capacity for two vehicles and is heated by means of a separate hot water heating system. Exhaust fans are placed in the outside walls at the floor line to carry off the paint fumes. Included in the paint shop is a fireproof paint storage room. Beside the double fire door entrance to the paint shop are two openings protected with double fire doors, for the passage of equipment to be painted.

The building is equipped with an ample supply of electric convenience outlets with twist lock receptacles and light outlets, as well as outlets for compressed air, natural gas and water. Piping of all kinds, including electric conduit, is run exposed overhead where possible to avoid the necessity of ever having to tear out concrete floors, as well as for convenience in making replacements and additions.

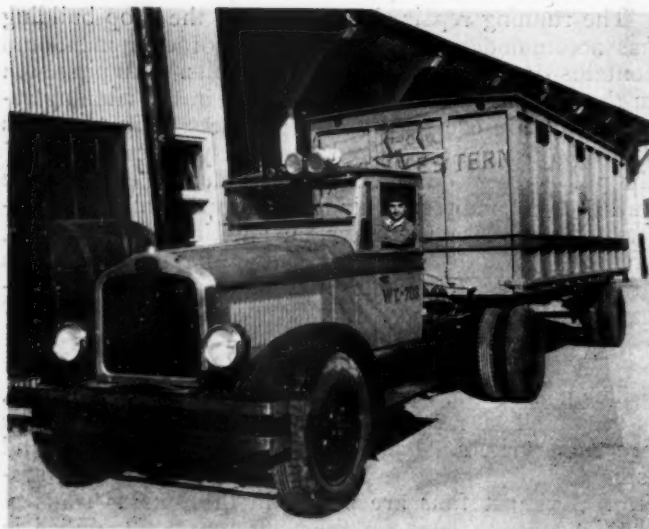
Heating of the shop building is accomplished by means of natural gas burners. Considering the reasonably mild climate to which these buildings are exposed, it was felt that the expense of a central heating system could not be justified.

Storage Building

On the same property with the shop building is located a storage and wash rack building for the care of equipment running in and out of Texarkana. The building covers a ground area of 12,000 sq. ft., and includes four wash racks, 15 ft. by 40 ft. in area, a drivers' lounging room, toilets, showers and lockers. Toilets and wash rooms are also provided for the use of the men employed in the building. The wash rack building is connected with the shop building by a con-



The Open Storage Shed—Wash Racks and Employees' Rooms at Left



Ready for the Road

crete runway, 6 ft. wide and 60 ft. long, over which assemblies can be brought to be cleaned before being repaired. All of the remaining space is given over to the storage of equipment between runs and when not in use.

The storage and wash rack building is of heavy timber construction, with side walls enclosing the wash racks and drivers' quarters, etc., covered with sheet iron. The storage sheds are open to the weather except for a roof. In connection with the wash racks is a room containing a 1,000-gal.-capacity hot water storage tank and a 500-gal.-per-hour-capacity hot water heater, which supply all of the hot water necessary for the washing of equipment, and the operation of showers and lavatories in the entire plant. The wash racks are equipped with high pressure outlets from the washing machine, and all necessary special electric fixtures to make thorough washing possible. They are also equipped with compressed air lifts for raising the equipment preparatory to washing the under sides.

"Overhead" Doors

All openings into both buildings, through which equipment must pass, are equipped with "overhead" doors operated with chain winches. This type of door was found to be the most satisfactory of any under consideration, and its use makes possible the saving of considerable floor space because of its method of operation.

The electric lighting and power systems for these buildings were given much consideration. All panels are of the most modern type. All outlets are placed at the most convenient points in the buildings in sufficient numbers to be immediately accessible. All machinery is driven by individual motors and is so wired that if one motor is out of the running, it has no effect on the system. All conduit to machinery is overhead.

The very best plumbing fixtures and piping were used in these buildings. The office in the shop building contains lavatories for both sexes. There is a lavatory for the use of shop employees, located in connection with the general repair shop, the enclosing partitions being only 4 ft. 6 in. high. Bradley wash basins were used throughout except in the office lavatories.

This group of buildings presents a pleasing appearance to the eye. Though operating efficiency was the paramount issue in their design, the neat appearance of the buildings and the comfort of employees was not overlooked. The interiors of the shop building and wash racks are painted white with a black wainscot 6 ft.

high. All lavatories, shower and locker rooms, etc., present a clean and sanitary appearance.

Tyler Facilities

The plant at Tyler is of the same type of construction as that at Texarkana, and the same details of construction exist there. The property is so located as to permit of grouping the buildings around a central court of sufficient size to allow the free movement of all equipment. On the north side of the property are located the running repair shop, freight room and offices, all in one building covering a ground area of 10,200 sq. ft. On the south and west sides of the property are located the drivers' quarters, wash racks with accommodations for three vehicles, and storage sheds (open) with a capacity for 26 motor coaches and trucks.

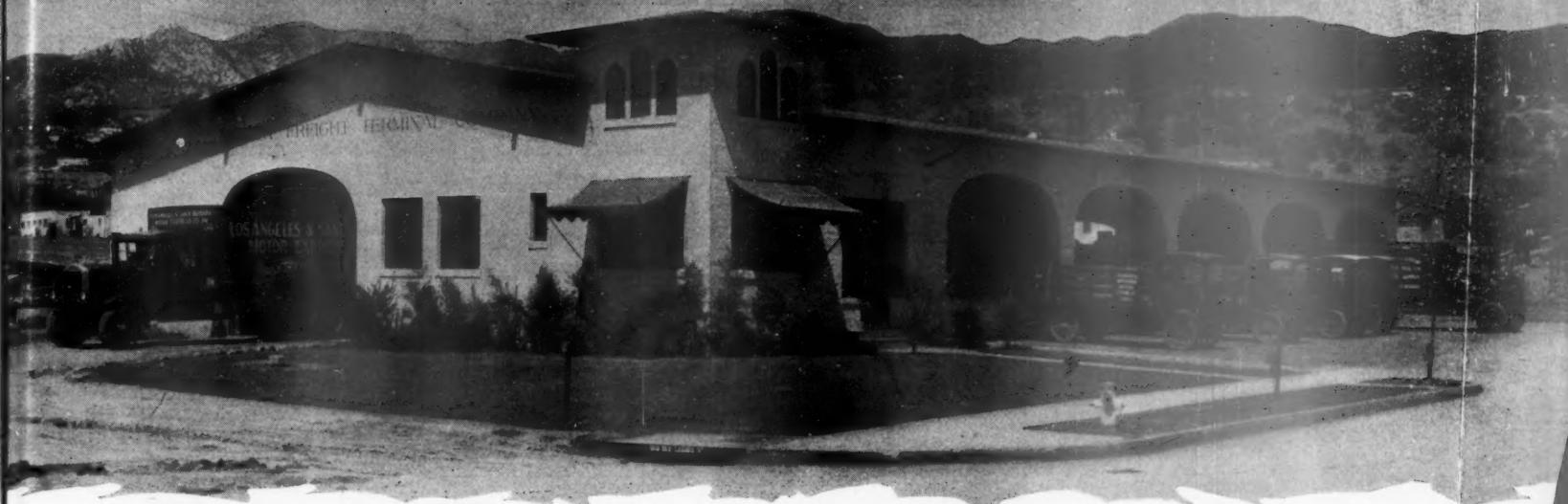
The first building mentioned above is of brick, concrete and steel. The running repair shop contains space for eight vehicles, two work pits opening into a depressed pit, three greasing pits, a parts department, and an overhead-hoist rail. All openings are equipped with "overhead" doors. The freight room contains 2,000 sq. ft. of floor area, and is equipped with a loading platform on the court side and doors for the discharge of local freight on the north side. Offices in this building are for the use of the freight agent and other officers in charge of operations in that territory. All offices have plastered walls and ceilings and dark pine trim. Lavatories for both sexes have tile floors and bases and plastered walls.

The wash racks, drivers' quarters and storage sheds are of the same construction as those at Texarkana and contain the same accommodations. The buildings are finished off neatly and add considerably to the efficiency of the work to be carried on.

The buildings erected by the Southwestern Transportation Company at Texarkana and Tyler are the first and most important of its maintenance units, and it is expected that additional units will be constructed at various points along its lines as needed. These buildings were erected under contract and under the architect's supervision. They represent an expenditure, including equipment, of approximately \$200,000.



A Part of the Heavy Repair Shop



Motor Freight Terminal at Santa Barbara

Store-Door Service Popular on West Coast

*Pacific Freight Lines Corp., a consolidation of
16 subsidiary trucking companies, shows
rapid growth since organization*

THE Pacific Freight Lines Corporation, Ltd., through local motor freight operating companies, furnishes daily overnight express service to 222 cities and towns in California, including Los Angeles, San Francisco, Oakland, Richmond, Fresno, Bakersfield, San Diego, Santa Barbara, Oceanside, San Clemente, Ventura, Oxnard, San Bernardino, and other important freight-producing centers. The 16 subsidiary companies operate over 1,060 miles of highway, and form one of the largest motor freight transportation systems in the United States. When the consolidation program is completed, the corporation will represent a capital investment of over \$4,600,000.

The corporation is under the supervision and management of the United States Engineering Corp., of which A. E. Fitkin is the dominant factor. Mr. Fitkin has organized and financed several public utility companies in the Middle West and on the Pacific Coast.

In motor freight transportation, the Fitkin interests saw a chance to apply the management and development experience which they have acquired in the public utility field, to a new but in many respects similar business. In the early days of the power and light industry, the same lack of co-ordinated engineering and financial effort existed as it does at present in the motor freight field.

The motor freight industry in the Pacific Coast district had developed practically no co-ordination of sales or of inter-line traffic effort, and it was generally under-financed and subject to the draining effect of carrying too great an overhead of promissory notes payable to the vehicle manufacturers. It was believed that the

benefits of organization in this new transportation service would result, eventually, in the development of a stabilized industry.

Monthly Tonnage Increasing

A store-door collection and delivery service is given at all points located on the established routes of the consolidated lines. That this service contributes to the welfare of the territory which it serves, providing it with a means of transportation which fulfills the de-

Pacific Freight Lines Corporation Earnings for Year Ending May 31, 1930

Gross operating revenues	\$3,006,954.89
Non-operating income	77,847.88
	\$3,084,802.77
Operating expenses, maintenance, and taxes other than federal income taxes	2,139,762.50
Net earnings	\$ 945,040.27
Prior charges, comprising interest, depreciation and federal income taxes	399,666.39
Balance available for dividends	\$ 545,373.88

mands of the shippers and producers for quick service at low rates, is indicated by the increasing amount of business handled. In the face of generally decreased business activity, there was an increase of over twenty per cent in the tonnage of freight transported during the first seven months of 1930.

In January the total tonnage carried was 35,315, and in July the total was 44,839 tons, an increase of 9,526 tons. Of the business currently handled, approximately 82 per cent is miscellaneous freight transported by trucks in common carrier service, and about 18 per cent oil,

gasoline and other commodities carried under contracts with individual shippers.

The Motor Freight Terminal Company, one of the subsidiaries, reported that pickups in Los Angeles a year ago averaged 135 per day, while at present they average 165 per day, an increase of 18 per cent. The San Pedro subsidiary last year averaged 65 pickups per day; at present the number is 140.

Consolidated earnings for the year ended May 31, 1930, are reported as shown in the accompanying table.

The California Railroad Commission assumes jurisdiction over motor freight companies and grants an exclusive franchise, in the form of a certificate of convenience and necessity to the operators. The commission also supervises the rates to be charged. Over seventy-six per cent of the earnings of the corporation are derived from operations which are under the jurisdiction of the Railroad Commission of California.

Not in Direct Competition with

The Railroad, Says President

A. V. Wainright, president of the Pacific Freight Lines says, "Motor freight transportation, strictly speaking, is not a competitor of the railroads, it is, rather, an important adjunct and should be considered as an ally to railroad transportation."

"Under present day methods of railroad operation, l.c.l. shipments frequently involve an arrival time which does not meet with the necessities of the consignee. For this reason, among others, motor freight transportation has developed, inviting on the part of the consignee an

ability to serve his customers with the products of his business without the necessity of carrying large inventories and the losses incident thereto, both as regards perishable and imperishable goods.

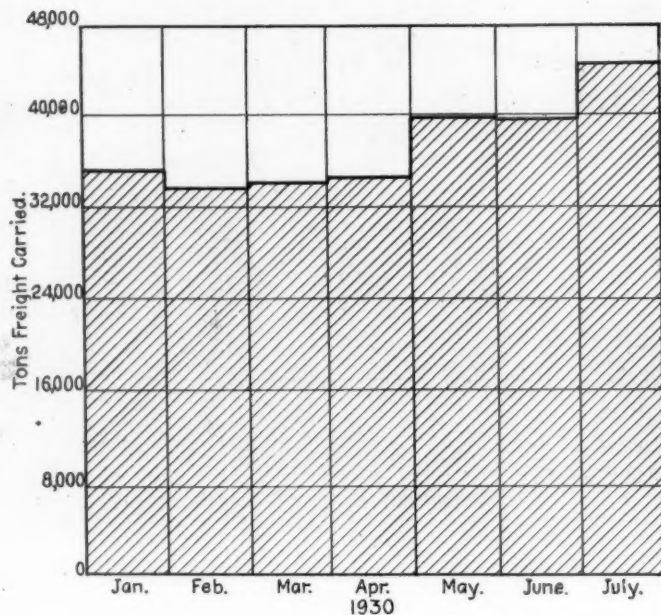
"Many shippers and consignees have found it possible to practically eliminate their personally-operated delivery systems, and by transferring this operation to an established freight handling concern, have helped to answer an important problem, which is, not reducing manufacturing cost but overcoming a constantly increasing overhead of distribution."

Approximately 640 trucks and trailers are operated, of which 40

per cent are of 10 tons capacity. Terminals are maintained by the company in eleven cities, in addition to seven terminals in Los Angeles and two in San Francisco. The terminal in Santa Barbara, shown in the illustration, is an example of the attractive design of some of these buildings. The large capacity truck shown at the left is in main line service, and the smaller trucks on the right are loading for local distribution.

The main line trucks serve the distributing centers on overnight schedules, a few examples of which are given: Leave Los Angeles at 6:00 to 7:00 P. M., arrive at Bakersfield, a distance of 123 miles, at 6:00 to 7:00 A. M. the next morning. Leave Los Angeles at 8:30 P. M., arrive at San Diego at 5:00 A. M., the distance being 132 miles. In the Imperial Valley service the truck leaves Los Angeles at 6:00 P. M. and arrives at El Centro, a distance of 225 miles, at 7:15 A. M. the next morning.

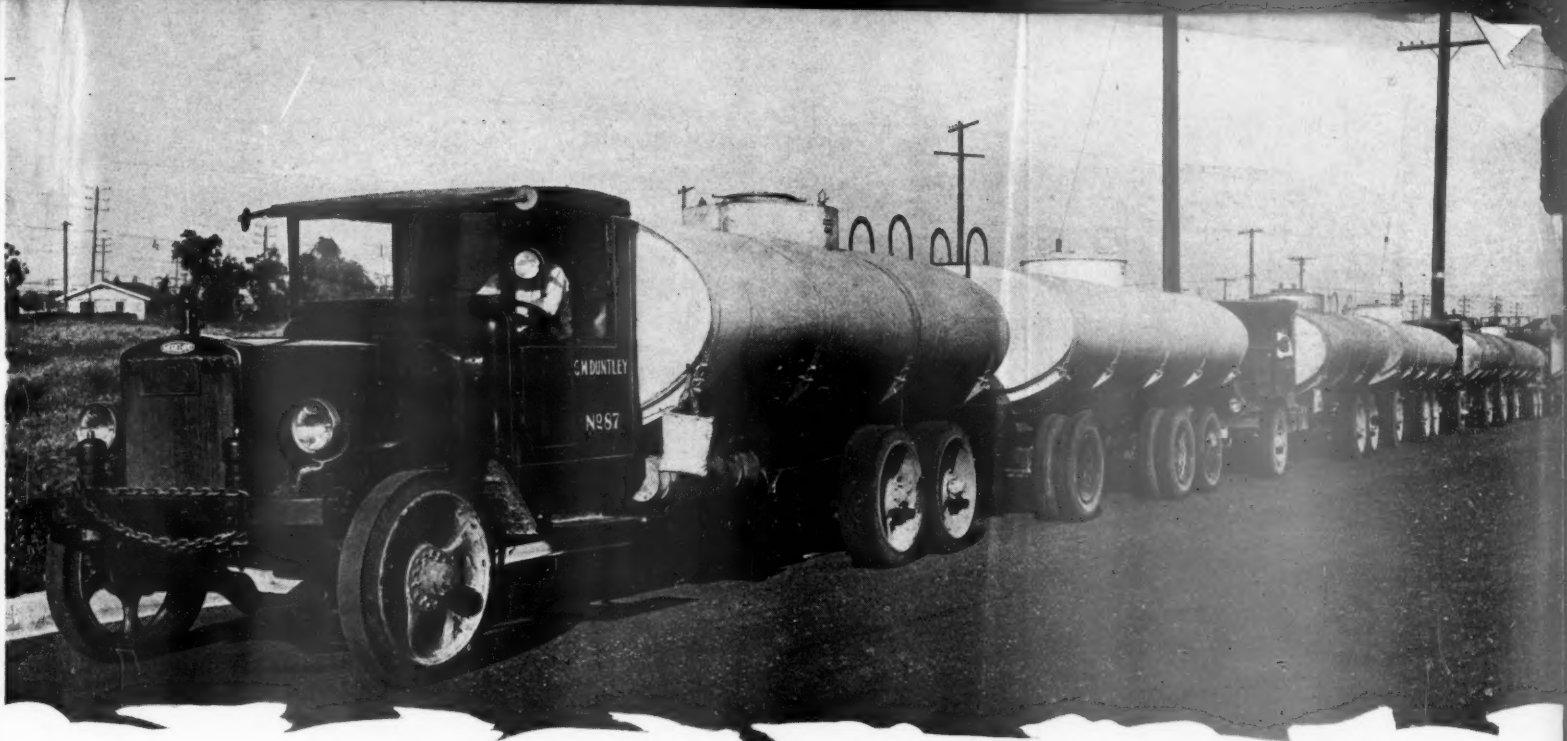
California is well adapted to motor freight transporta-



Total Freight Carried By All Subsidiaries Since January 1, 1930

A Group of Main Line Trucks Enroute to Los Angeles





Hauling Gasoline For One of the Large Coast Refineries

tion for several reasons, probably the most important of which is the system of paved express highways and improved roads which are being extended rapidly under the aggressive plans of the state highway department. These highways permit of economical, high-speed operation and give access to virtually every portion of the state where loads originate, regardless of mountain grades and other obstacles affecting competitive transportation operations. Under these practically ideal conditions, the motor trucks can maintain time schedules which assure first morning deliveries to distant points, at rates said to be generally lower than those of the railroads, when the value of the door-to-door service is considered.

Another factor favoring motor transportation is the rapid growth of the harbor cities of Los Angeles and San Francisco, which has been brought about largely by the establishment of industrial enterprises on the Pacific coast, where the demand for finished products is constantly increasing, not only for local consumption but also for export. Aggressive efforts are made to encourage the location of major national industries in this area.

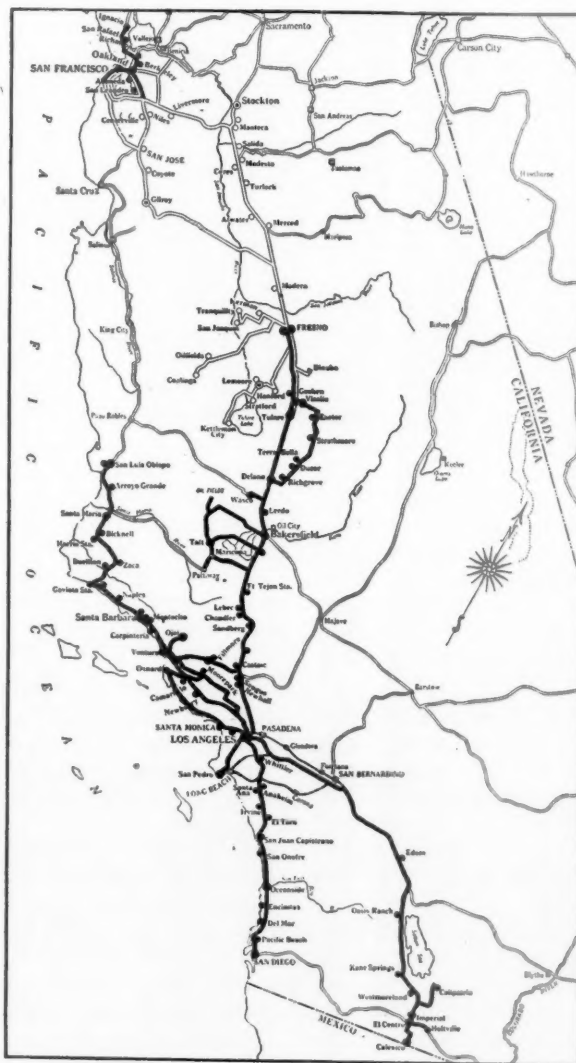
Adequate irrigation facilities, in conjunction with the favorable climatic conditions, assure large crops of vegetables and fruits in the Imperial and San Joaquin valleys. The value of fast

service to these shippers is said to be due to the improved quality and added freshness with which their perishable commodities are delivered, under refrigeration, to the cities, resulting in less handling loss and higher prices than otherwise. Motor truck service has proved attractive to shippers of such agricultural products.

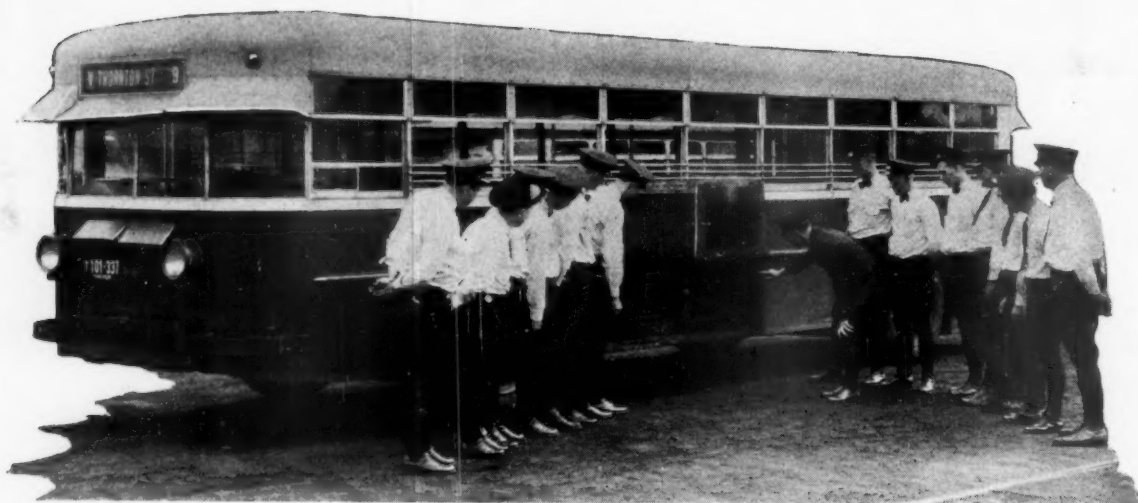
The oil fields at Taft, Ventura and elsewhere require a varied assortment of parts and tools which no supply house located in the fields could reasonably be expected to carry. The regular overnight truck service makes these parts available when needed almost as quickly as would a special trip by truck, which would otherwise be necessary.

Large quantities of gasoline are handled by one of the subsidiaries of the Pacific Freight Lines Corp. The saving resulting from reduced evaporation of gasoline shipped by tank trucks instead of by railway tank cars is estimated to be several cents per gallon, varying with the length of the haul. This saving enables the gasoline companies to sell at competitive prices in outlying districts.

The motor freight operations, in the entire territory served, are free from interruptions of traffic caused by severe winter weather. This, with the excellent highways available, aids in the year-round maintenance of scheduled service.



Options Have Been Obtained On Lines Connecting Fresno and San Francisco



Instructing Operators Regarding the Location of the Electrical Units

Reducing Maintenance Costs by Training Operators*

Mechanical units which have been damaged in service are used for demonstration in the classroom

By J. S. Lowe

Superintendent of Transportation, Akron Transportation Company

IN 1926, the Akron Transportation Company established a service school as a part of its transportation department. The purpose of this school was to aid the inspectors and the vehicle operators in obtaining additional information relative to the mechanism of the company's motor coaches. Before the school began, it was decided to cover transportation subjects and the principles of accident prevention. The men were told at the beginning that their attendance was compulsory if they expected to remain in the service of the company, and that they would learn things which would be beneficial to them in almost any life endeavor which they might later decide to pursue.

Two Lectures Daily

Lessons are given in the school twice daily. Operators attend at least one session each week for 20 weeks. The men attend on their own time. Previous experience is not considered. This course of training applies only to operators who have completed their preliminary training instruction and are operating their own vehicles alone. As a result, it is felt, the employees get their theoretical and practical training simultaneously.

The course is conducted in the form of lectures to groups of 25 men at a time. After each lecture there is an open discussion and a review of previous lectures. We have not endeavored to crowd too much information into any one session; rather we have gone along point by

point and analyzed the engine, oiling, cooling and ignition systems, the carburetor, clutch, transmission, axles, brakes, tires, wheels and fenders. Every part of the vehicle is covered in the mechanical course. Much of it is technical and consists chiefly of explanation. Charts, drawings and actual parts of a vehicle are used in the demonstration work to give students a clear understanding of the subject. In teaching accident prevention, care is exercised in the manner of presentation, the thought being that the lectures should be correlated with accidents that actually occur. Charts form an important part of this feature of the course.

Outline of the Course

The subjects covered in the transportation course include the following: Operating rules, schedules, fare collections, reports, cooperation, personal appearance, personal conduct, courtesy, selling the service to the public, selling the company's securities and heating and ventilation of the vehicle. Traffic rules and the care of passengers are made special features. On the whole, an effort is made to cover every line of training that it is thought motor coach operators may need, from knowing how to drive and how to care for the complete vehicle, to the proper methods of serving the public. Upon completion of the course and the attainment of resulting satisfactory grades, diplomas are presented to the men.

The company does not undertake to teach the operators about the mechanical parts of the vehicles to the extent that they can repair them while in service if trouble de-

* From a paper presented at the Transportation Meeting of the Society of Automotive Engineers in Pittsburgh, Pa., Oct. 23, 1930.

velops, but it does undertake to train a man to the point where he knows what every part is designed to do, what does and how to use it.

The results of the specialized training-school have been most gratifying from the standpoint of reducing road calls and maintenance cost, as well as reducing the number of complaints from our patrons. The number of accidents has also been materially decreased.

The gasoline engine constitutes a subject of considerable breadth and importance. In the engine lessons, the students receive thorough instruction on the principle of the four-cycle engine, and the two-cycle engine is also explained. The students are shown the necessity of watching the oil gage. Cut-away parts of the engine enable the students to get a clear understanding of the cooling system and how water is forced through the system by the water pump. Other details of the engine such as timing, firing order, valves, pistons, and the like, are also explained in detail.

In receiving instruction on the transmission, students are familiarized with the various gears and shown that the top or transmission shaft gears revolve according to the speed of the rear wheels, while the lower or countershaft gears revolve according to the speed of the engine. It is quickly understood, from this demonstration, why it is necessary to allow the engine to slow down in shifting forward or to step the engine speed up in back shifting. The students are also instructed as to what harm can be done to the gears by improper shifting or jamming.

Demonstrations are made to students to illustrate the importance of proper care of tires, this being considered essential to obtain increased mileage and fewer delays, on the road, from tire trouble. They are instructed to see that tires are properly inflated and that no foreign objects are lodged between the dual tires.

One instance of a tire that had been damaged beyond repair by a foreign object becoming lodged between the dual casings, was brought to the classroom, and the operators were told that had the object been removed in time, the company would have obtained at least 15,000 more miles of service from the tire.

Instruction on Dealing With the Public

The importance of maintaining friendly relations with the public is covered by the following outline:

Quality of Information—This involves giving sufficient information to completely meet the needs of the patron, even though this requires going beyond the actual questions asked, and being certain that the statements are accurate. All information must be made clear and understandable and must be adapted to the ability of the particular customer to understand and remember it.

Interest in the Customer—The men must maintain a cheerful and friendly attitude, making every effort to assist in a ready and willing manner. They should make the patron feel that he is receiving the operator's undivided attention and show an unusual desire to assist the patron by asking enough intelligent questions to ascertain his exact needs.

Speech—Operators are instructed to speak in a pleasant

low-pitched well-modulated tone, using care to avoid the unpleasantness usually associated with a sharp voice or an abrupt manner; to speak distinctly in order that the patron may have no difficulty in easily understanding everything that is said; and to choose words appropriate to the individual, avoiding as much as possible incorrect pronunciation and faulty grammatical construction.

Courtesy or Politeness—Requires the use of appropriate polite phrases, and the men are told also to perform such courteous acts as they may have opportunity to do.

Personal Appearance—Instructions are given each man to wear neat, clean and well-fitting clothes, to keep his person presentable by being well groomed, and using care to keep his hands, face and teeth well cleaned; and to have an alert bearing, avoiding unpleasant habits and manners.

Fare Collection—An operator must make certain that the company is compensated for each and every passenger carried. Further, he is told to inspect other than regular transportation tickets that may be presented to see that they are acceptable.

Accident Prevention—It is carefully explained to the operators why life and limb must be preserved, and that the needless destruction of property and the unnecessary expenditure of money must be prevented.

Operation—Instructions are given to operate in a safe and efficient manner at all times, with due consideration to the equipment and the passengers. Operators are also instructed to make evident by a high standard of operation, that courtesy and consideration for other traffic is a policy of the company.

What to Do When Accidents Occur—Take care of the injured, notify the company and secure witnesses; help clear the scene of the accident so that traffic can move; and fill out a written report, explaining all details in full, at the completion of the day's work.

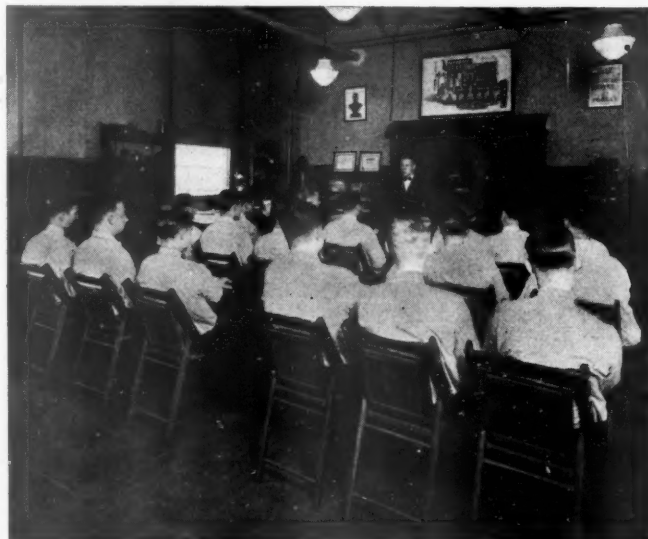
In the safety lectures, students are impressed with the fact that safety not only should be, but must be, their foremost consideration, and that cutting in and out of traffic and passing lines of traffic moving in the same direction has been the cause of head-on collisions with vehicles coming from the opposite direction. The students are instructed to have proper consideration for drivers of other vehicles, and not be selfish in maintaining their rights on highways.

The total accidents of our company increased from 5,691 in 1923 to 6,152 in 1926, which was our peak year in accidents. Through efficient training we have been able to reduce this total year after year. Our records show 1930 as having 1,857 accidents for the first seven months, which reduces the monthly average from 512 in 1926 to 265 in 1930. At the same time we have increased the miles operated per accident from 2,584 to 4,766.

During the same period we have increased the passengers carried from 11,884 to 18,641 and reduced the number of vehicle collisions from 3,715 in 1926 to 2,681 in 1929, with only 939 vehicle collisions in the first seven months of 1930. We operated 4,279 miles per vehicle collision in 1926, while in the first seven months of 1930, we operated 9,426 miles.

Accident Prevention Work

During 1924 the accident prevention department inaugurated an individual accident record, indicating the exact experience of our motor coach operators. Primarily, this record was compiled to determine who the careless men were and at the same time to indicate those who



Lessons are Given Twice Daily in the Classroom

were exceptionally careful. At the close of the first year, the accident records were analyzed and it was discovered that a total of 35 operators had completed the year without being involved in an accident of any nature. These operators were presented with a gold emblem indicative of this accomplishment. Following the presentation of the safety medals, the safety honor roll was created. This is conspicuously placed in the assembly room of each division, and at present it displays the names of 322 men who have operated motor coaches for a period of from 1 to 5 years without an accident. Of these men, 225 have completed their first year, 60 their second year, 26 their third year, eight their fourth year and three their fifth year without having an accident. The number of names added to the honor roll each year has steadily increased from 35, at the close of the first year, to 124 for the year ending May 1, 1930.

The selection of a suitable instructor is one of the most difficult tasks in establishing and conducting a school, as the instructor should be selected from the rank and file of the operators if possible. He should, of course, be a man of the highest type in the organization, of pleasing personality and well liked by his fellow employees. He must also possess a successful record as an operator, with respect to courtesy, co-operation, and caring for equipment and must have an excellent accident-prevention record. He should have a pleasing voice and impressive delivery. We happen to have this particular type of instructor in our organization, whose previous training well qualifies him to fill the position and who has had considerable training in public speaking which qualifies him as an efficient instructor.

The low cost of this training is also an interesting feature. A room, not otherwise used, in our principal garage was equipped with various automotive parts which were not serviceable; that is, with equipment damaged by improper use. As this room is a part of the main garage, the cost of lighting and heating is nominal; in fact, the only cost worthy of mention is the salary of the instructor, which is the same as that of a dispatcher.

Store-Door Service Proves Popular on the West Coast

(Continued from page 1139)

ules. Favorable weather and highway conditions also minimize maintenance expenses.

Economical overnight service enables outlying farmers and dairymen to compete profitably, in the Los Angeles market, with growers located much nearer the city, and to deliver their goods to the export and coast terminals under favorable market conditions. The motor transport service has also made a good market for second grade produce, giving the consumer fresh fruits and vegetables in good condition at low prices.

Rates Charged

The business handled consists of all classes of commodities handled by the railway express company, but at rates said to be lower than express rates and, when allowance for pick-up and delivery costs is made, generally lower than railroad freight rates which do not cover the store-door delivery feature.

A specific example may be cited in a recent shipment of telephone wire on spools from Los Angeles to Bakersfield. The motor freight rate was 61½ cents per hundred lb. while the rail rate is 55½ cents. Cartage to the

railroad station in Los Angeles, it is said, would have cost eight cents per hundred, vehicle cartage to the consignee's door would have cost 12 cents a hundred. The actual rail cost then would have been 75½ cents per hundred lb., or 14 cents higher than was the motor transport rate.

Another example is afforded by a movement of oranges from Fillmore to Los Angeles harbor. The motor transport rate of 24 cents per hundred lb. included pick-up in Fillmore and delivery to shipside at the harbor. The railroad rate is 18½ cents per hundred lb. to shipside, but adding the cost of cartage in Fillmore, 6 cents a hundred, the total cost of transportation by rail, it is stated, would have been 24½ cents a hundred.

Effect of Mergers on Traffic Handled

Recognition of motor freight transportation by the state railroad commission is said to have encouraged the consolidation of many small and undeveloped independent units, permitting them to operate as a joint system with freedom from other highway competition. The Pacific Freight Lines is at present the largest consolidation of this kind in the state.

The benefits declared to be derived from the consolidation of several lines under one management result, first, from the simplified traffic movement, which enables shipments to be billed directly from the factory to the retailer or user, without the engagement of two or more local delivery companies; second, from the greater efficiency in operation because of standardized equipment, scientific methods of loading and dispatching, efficient maintenance methods, and co-ordinated sales effort; and third, from the greater satisfaction of the shipper in dealing with a responsible business organization which carries complete cargo insurance and has the facilities for returning the revenue from C.O.D. shipments promptly.

* * *



A Jersey Central-Reading New York-Harrisburg, Pa.,
Motor Coach

Eliminating Guesswork from Truck Operation

Motor haulage cost accounting system includes all costs and is sufficiently flexible to be applied to large or small operations

THE Motor Haulage Company, Inc., of New York and Jersey City, N. J., operating one of the largest fleets of motor trucks in the metropolitan area and giving a contract service to commercial organizations, railroads, and steamship lines, has had in operation for the past nine years a cost system which is the result of their efforts to simplify, first, the accumulation of all of the costs of doing business, and, second, the application of these costs for rate-setting on prospective work and for controlling the results, from a profit and loss standpoint, on work performed under contract. While the system is designed to fulfill the needs of their particular business, it is believed to be sufficiently flexible to be applied to any form of motor truck service.

W. F. Banks, president of the Motor Haulage Company, states that the important features of their cost system are as follows: It has a direct tie-up with the general accounting system; the cost units are reduced to a minimum; it makes possible more accurate estimates of the cost of new operations; and it provides a means for obtaining a picture of the financial status of operations already under contract.

Classification of Accounts

The classification of accounts, as shown below, is outlined in a simple form and can be expanded or contracted to meet the needs of both large and small operations.

The following form outlines a comprehensive system

of classifying the accounts of a motor transport business:

- (1) Direct Expense
 - Wages of drivers
 - Wages of helpers
 - Ferry charges
 - Loading charges
 - Other expense chargeable to the individual job
- (2) Vehicle Operating Expense
 - (a) Operating materials
 - Gasoline
 - Lubricants
 - Tires
 - (b) Maintenance
 - Labor
 - Parts and materials
 - Outside repairs
 - Shop rent
 - Light, heat and power
 - Depreciation of shop equipment
 - Tool expense
 - Salaries
 - Other maintenance expense
- (3) Overhead Expense
 - (a) Fixed expense
 - Depreciation of vehicles
 - Cartage licenses
 - State licenses
 - Insurance
 - Fire, theft and transportation
 - Public liability and property damage
 - Collision
 - Merchandise
 - Compensation
 - Contents of building

Fig. 1—A Cost Sheet Which Allows the Actual Costs To Be Compared With the Estimated Costs, Indicating to the Salesman Whether He Set Too High or Too Low a Rate

FORM NO. 101 600-2-30		COST SHEET									
ACCOUNT		COMMODITY									
FROM		TO									
DATE											QUOTATION PER
NUMBER PACKAGES											UNIT
WEIGHT											PROFIT LOSS
NUMBER OF LOADS											CONTAINER SIZE
TRUCK NO.											CONTAINER WEIGHT
CAPACITY											
MILES											
TRUCK DAYS											
TRUCK HOURS											
DRIVERS WAGES-REG											
" " O. T.											
HELPERS WAGES-REG											
" " O. T.											
LOADING RATE AND CHARGES											
FERRISSE & TUNNEL											
DIRECT OPERATING											
TOTAL COST											
RECEIVING CONDITIONS											
DELIVERING CONDITIONS											
EXPLANATIONS ABNORMAL DELAYS											
AS INVOICED											

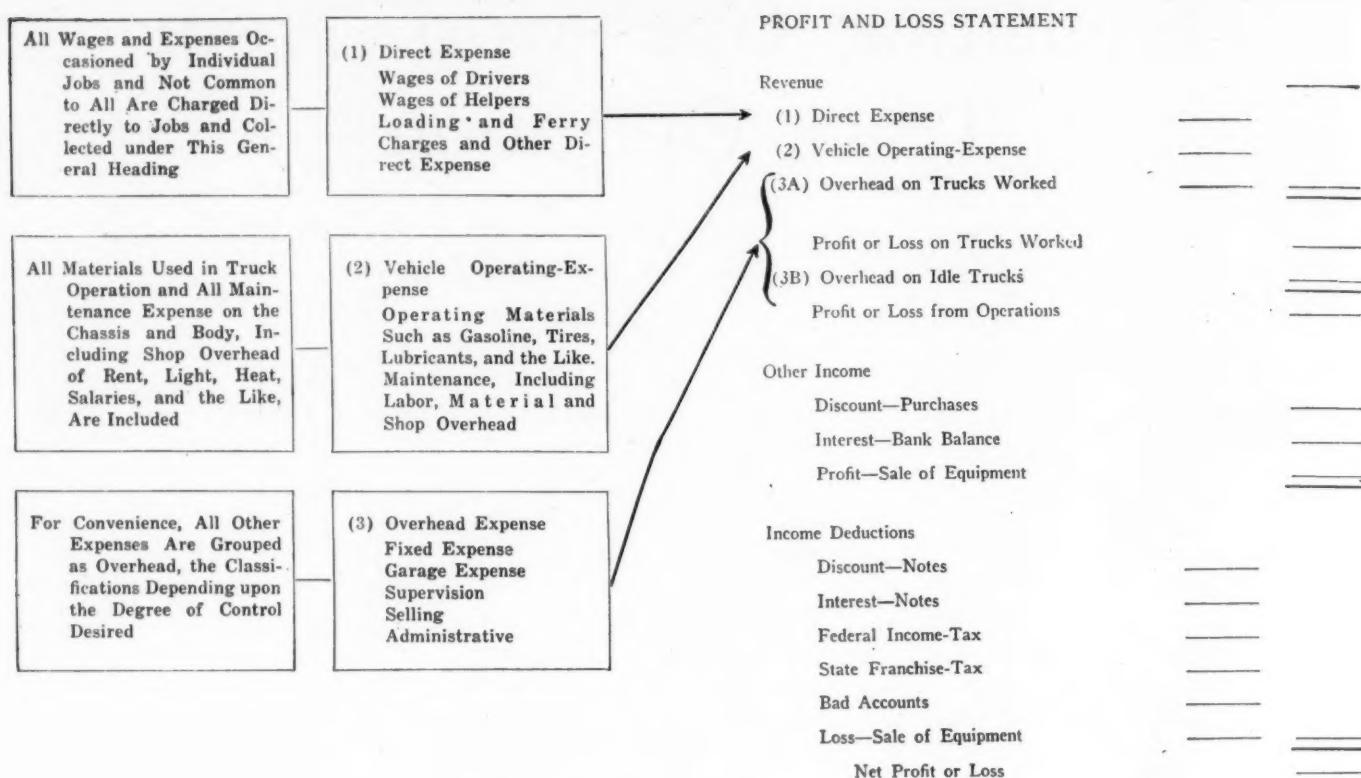
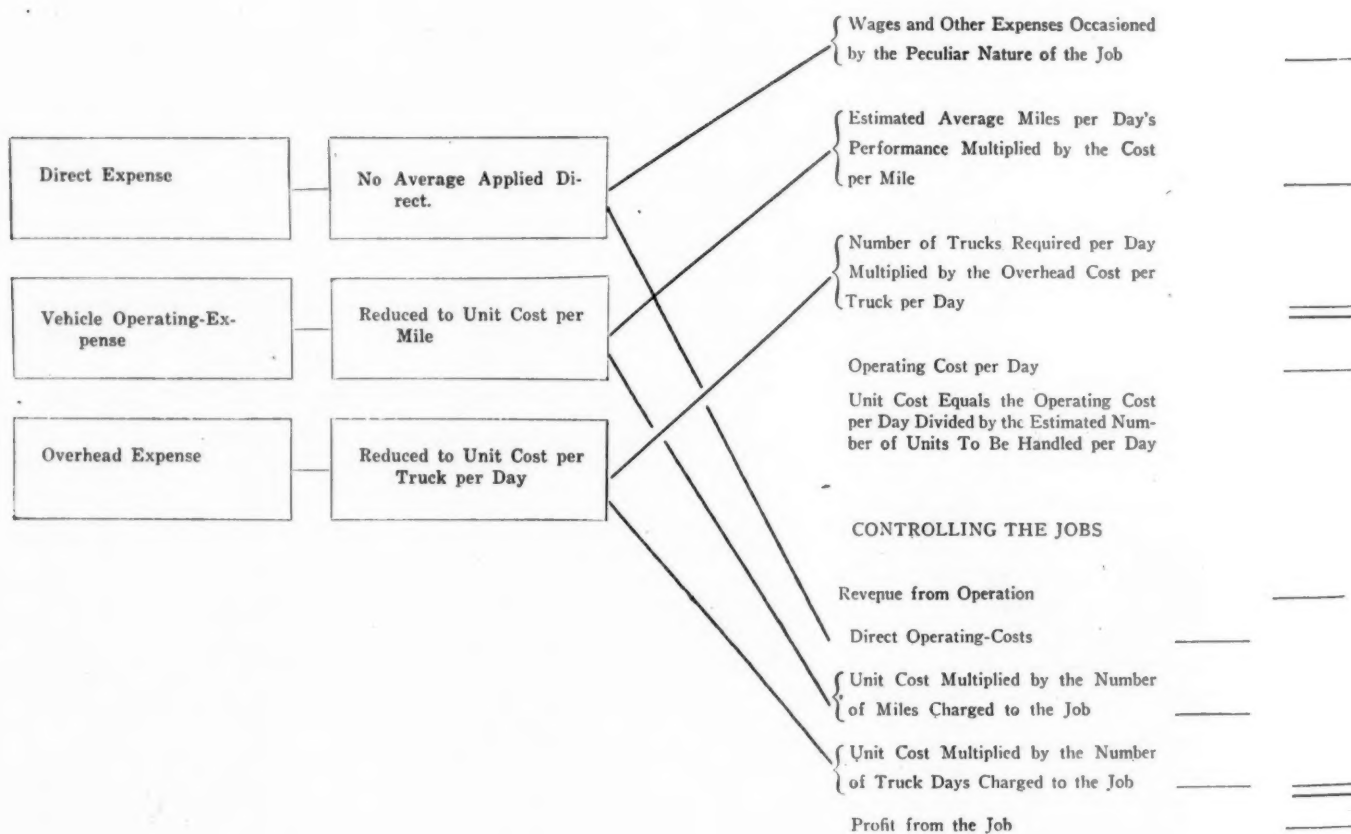
ESTIMATING THE COSTS OF
PROSPECTIVE JOBS

Fig. 2—The Proper Utilization of Costs Is of More Importance Than the Method by Which They Are Obtained. Methods for Determining the Profit and Loss, Estimating the Cost of a Prospective Job, and for Controlling the Cost of Jobs in Progress, Are Here Indicated

- (b) Garage expense
 - Rent
 - Light, heat and water
 - Wages
 - Other garage expense
- (c) General supervision
 - Salaries of foremen
 - Salaries of clerical help
 - Foreman's automobile expense
 - Foreman's miscellaneous expense
 - Other supervision expense
- (d) Selling expense
 - Advertising
 - Subscriptions and dues
 - Salaries
 - Automobile expense
- (e) Administrative expense
 - Office rent
 - Salaries
 - Telephone and postage
 - Stationery and supplies
 - Depreciation of furniture and fixtures
 - Legal expense
 - Automobile expense
 - Other administrative expense

The accumulation of costs, their tie-up with the general accounting system, and their regular use, particularly in the determination of the status of each job, is perhaps more important than the individual form of cost system used. The purposes of the Motor Haulage Company in using these costs will be described in some detail.

Accumulation of Costs

The accumulation of costs for the purpose of determining the profit or loss resulting from the business as a whole is accomplished as indicated by the diagram, using, as a basis, the three main groups of costs as shown in the classification, namely, direct expense, vehicle operation expense, and overhead expense. Group one, in the profit and loss statement, is an accumulation of all of the direct expenses incurred, as outlined in the classification. All wages and expenses, chargeable to individual jobs and not common to all, are charged directly and collected under this general heading.

Group two is an accumulation of all of the vehicle operating expenses, including all materials used in truck operation and all chassis and body maintenance expense. Group three, covers all overhead expense, and is divided to provide control of the overhead on idle trucks. To do this the total overhead expense is reduced to a unit cost per truck per day on the basis of the number of days the truck is available.

Available Truck Days

The number of days the truck is available is determined as follows:

Total Productive Equipment Owned, per cent	100
Estimated Average Amount of Equipment Out of Service for Repairs, per cent	10
Estimated Enforced Idle Equipment due to Nature of Business, per cent	2
Net Available Equipment, per cent	88

Using the above estimates, the number of days the truck is available, in a given period, will be 88 per cent of the total equipment owned times the number of working days during that period, the difference between the total number of days the truck is available and the total number of days the truck is worked representing the number of days the truck is idle.

The number of days when the truck is idle represents an element of cost which is not usually considered, and after it has accumulated for a period serves as a guide for controlling the amount of equipment required for a given volume of business.

Since all business consists of selling commodities or services for more than they cost, it is self-evident that the profits to be derived depend upon a knowledge of the costs involved. One of the principal uses of cost data in a motor transport business is to determine properly the cost of a prospective job.

For this purpose the same groupings of cost data are used as are made for the accumulation of costs, as shown in the illustration. The units used in the table are based upon costs per truck per day, giving as a result the total operating cost per day. In the average common carrier type of hauling service, where several shipments are carried in the same truck to one or to several destinations, it becomes necessary to use a different unit. The same outline can be followed, using any commodity and distance unit which may be required by the type of service rendered, by dividing the operating cost per day by the estimated number of units to be hauled per day.

Direct Expense Data

The direct expense data (Item 1) are applied directly to the job to which they refer, and are so applied because they are a charge against the individual job and cannot correctly be averaged for all jobs. Vehicle operating expense data (Item 2) are reduced to an average cost per mile basis, as they are common expenses to all jobs. Overhead expense data (Item 3), being principally expenses that accumulate irrespective of working hours or distance traveled, are applied by reducing them to an average-cost-per-truck-per-day-available basis, as already explained. The application of this average cost makes the job carry its proper proportion of the total overhead cost.

In applying the averages mentioned, current-month cost data are not used, first, because one month is too short a period, and, second, because of the monthly fluctuations in costs. The previous year's average will give a more accurate figure and can be used as a fixed basis for monthly comparison of job performances.

Controlling the Job

A cost sheet, illustrated in Fig. 1 is used when estimating the cost of a new job and for making a quick check of jobs in progress. The form is used primarily to assure greater regularity and accuracy in estimating costs enabling the actual costs to be set up for comparison with the estimated cost, this analysis quickly indicates the ability of individual motor truck service salesmen in this important respect. Without making a direct comparison in this way, teaching salesmen to make accurate estimates becomes a long and expensive process.

In controlling jobs in progress, the set-up for which is shown in Fig. 2, costs are balanced against revenue. The costs are made up of the three units, as before: (1) direct expense; (2) operating expense, here reduced to a unit cost multiplied by the distance unit charged to the job; and (3) overhead expense, in terms of unit cost per unit of time charged to the job. The excess of revenue over cost represents the profit on that particular job.

THE ANNUAL ROAD SHOW of the American Road Builders' Association to be held in St. Louis, January 10 to 16, 1931, will include a motor freight exposition of all equipment used by the highway freight transportation industry, according to a recent announcement by Charles M. Upham, engineer and director of the association. Included in the exhibit will be motor trucks, vans, refrigerator bodies, and other equipment and supplies.

New Equipment

Mack Announces Large Six-Cylinder Truck

DESIGNED for heavy duty service where greater speed and power is essential, the new six-cylinder, model AK truck, a product of Mack Trucks, Inc., New York, is intended to fill a specific motor haulage need which has somewhat exceeded the capacity of the four-cylinder model AK. The six-cylinder model retains the Mack type hood and is offered with either an open or a coupe-type cab.

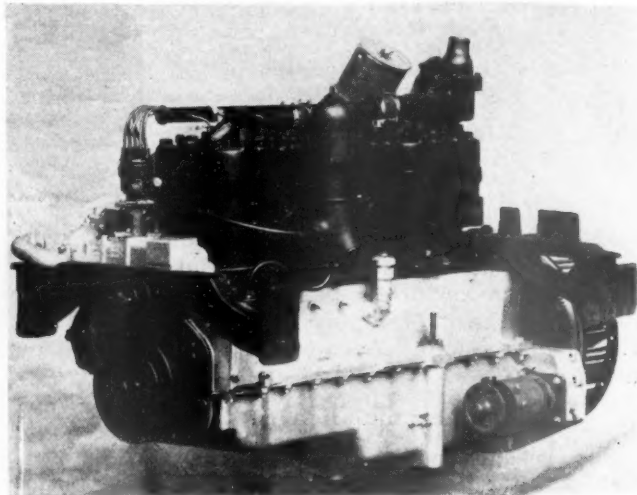
The new unit is powered by a Mack six-cylinder engine, with a bore and stroke of $4\frac{1}{2}$ in. by $5\frac{1}{2}$ in., and is said to develop 126 hp. at 2,200 r.p.m. The pistons are of the constant clearance, Invar-strut, aluminum alloy type, and the connecting rods are of tubular cross section. The crankshaft has integral counterweights and is equipped with a vibration damper.

The flat-seated valves are located on the right-hand side of the engine. All lubricating oil is filtered through an H. W. filtrator. A squirrel-cage-type blower fan, located on the flywheel, forces air through the continuous-finned, tubular radiator located in the cowl. The temperature of the cooling water is automatically controlled by a thermostat located in the cylinder head outlet pipe.

The transmission has four speeds forward and one reverse, and is driven by a single-plate, dry-type clutch. The final drive is by either chains or enclosed gears. The enclosed drive is of the dual reduction, full-floating type with each gear assembly independently accessible without jacking up the axle or disturbing the wheels or brakes.

The special steering knuckle construction reduces steering effort and minimizes the effect of front wheel

braking. The front axle is of the reversed Elliot type, with center point steering. The internal expanding service brakes operate on all four wheels, assisted by

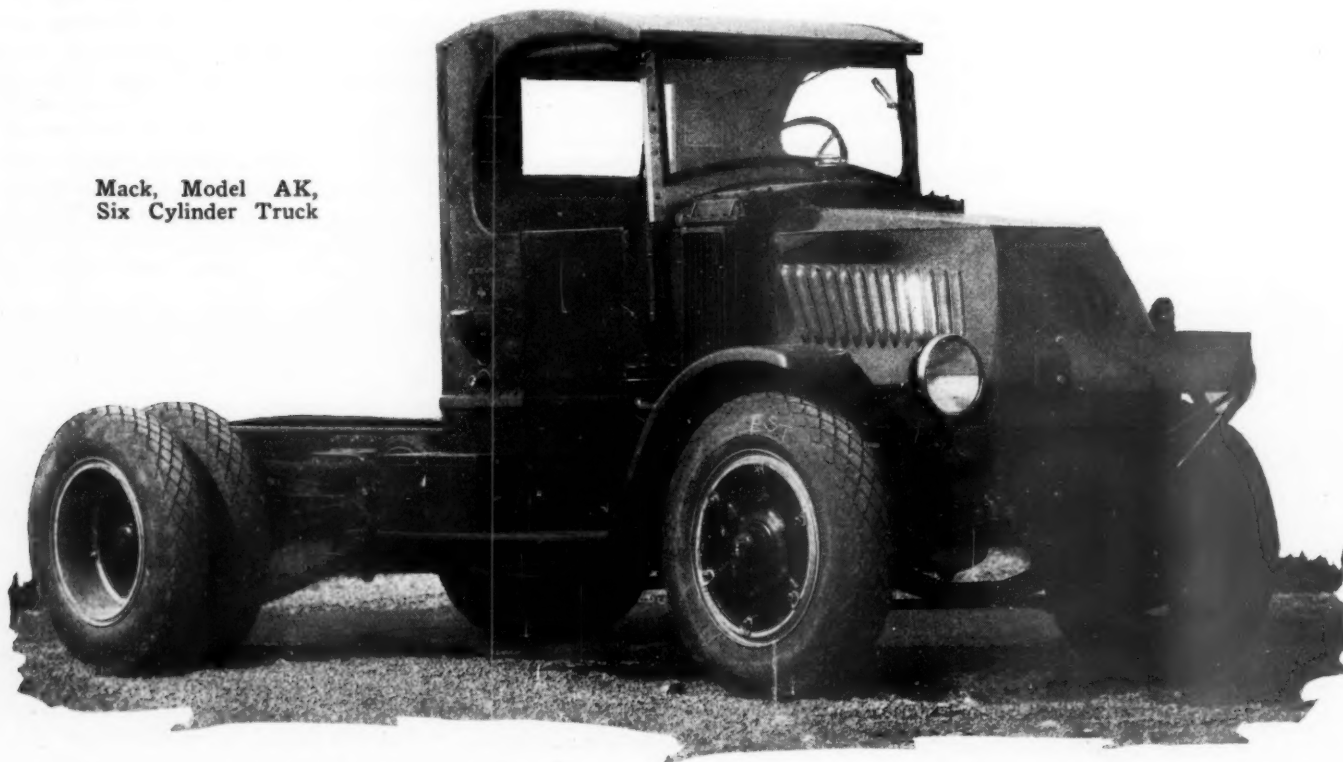


The Six-Cylinder Engine Has a Displacement of 525 Cubic Inches

a vacuum booster. The hand lever operates a secondary set of brakes on the driveshaft. The springs are mounted in rubber shock insulators, the rear springs having additional two-stage helper springs.

Standard wheelbase lengths of 174, 186 and 198 in. are available.

Mack, Model AK,
Six Cylinder Truck



Dodge Brothers' New Line of Motor Trucks

THE Dodge Brothers Corporation, Detroit, has announced a new line of trucks which have been designed to meet demands for greater power, speed and flexibility. The new models range in capacity from 1,000 to 11,800 lb. with normal body allowance, and in wheelbase lengths from 109 to 195 in.

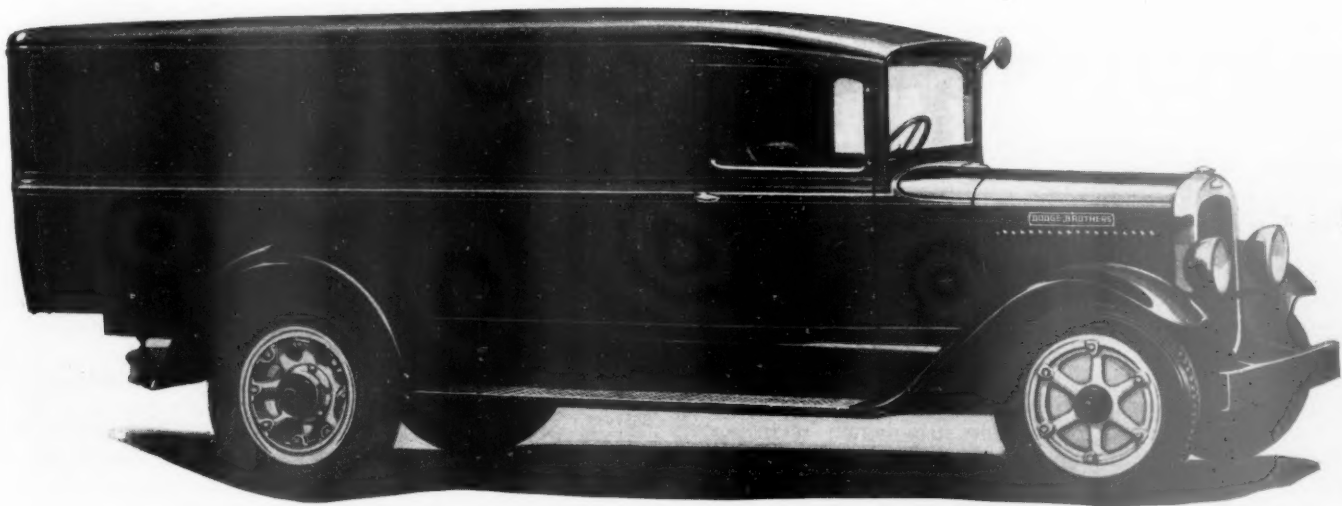
Full-floating rear axles and four speed transmissions on all but the half ton models, double drop frames, five-stage progressive rear springs and brake boosters on the three-ton models, internal expanding hydraulic four-wheel brakes, full force feed lubrication, fuel pumps, aluminum alloy ventilated pistons, short turning radius and more powerful engines for all models, are the outstanding features of the new trucks. There are five standard models with load capacities of 1,000 to 4,000 lb. and seven heavy duty models covering the capacity range between 3,150 and 11,800 lb.

The new one and one-half ton truck has a full floating rear axle, internal hydraulic four wheel brakes, a 10-in. single plate clutch, a 7-in. frame, 136-in. wheelbase, and a 48-hp. engine of either four or six cylinders.

The two- and three-ton models have a 96-hp., six cylinder engine of 309.63 cu. in. capacity. Other features of these models are a clutch having a diameter of 13 in., a heavy duty four-speed transmission, oil-type universal joints, and balanced propeller shafts three in. in diameter. The total service brake area is 416 sq. in.

The three-ton chassis can be obtained with either a straight or a double drop frame. The double drop frame, it is said, is well adapted to wheelhouse-type bodies. It permits a lower body floor, reducing the overall height and also the center of gravity of both the chassis and the load. The five stage rear springs are said to reduce road shock and side sway. The three-ton models are offered in three standard wheelbase lengths; 146, 170 and 195 in., and the two-ton models in two standard wheelbase lengths of 150 and 165 in. Five tire combinations are available on each chassis.

The cabs furnished for each model are roomy and comfortable, and have full vision windshields.



Dodge Brothers, Model F-35B, 1½ Ton Chassis with Panel Body

Hunt-Spiller Obtains Patent on Improved Brake Drum

THE Hunt-Spiller Manufacturing Corp., Boston, Mass., has been granted a patent on a brake drum for automotive vehicles which has several interesting features of design. From the illustration, it will be noticed that ribs are cast into the drum on the beveled portion and on the outer diameter of the drum parallel to the braking surface.

The ribs strengthen the drum against distortion and provide for better dissipation of heat, reducing the tendency of the drum to turn within a relatively unagitated body of heated air. Thus the ribs not only increase radia-



The Ribs Strengthen the Drum and Help to Dissipate Heat

tion of the surface, but their arrangement provides for transfer of heat. The ribs across the braking face also provide for equalization of the heat across the width of the drum.

The ribs tend to prevent squealing since vibrations can travel but a short distance before encountering an area of different section, and their action is thus checked.

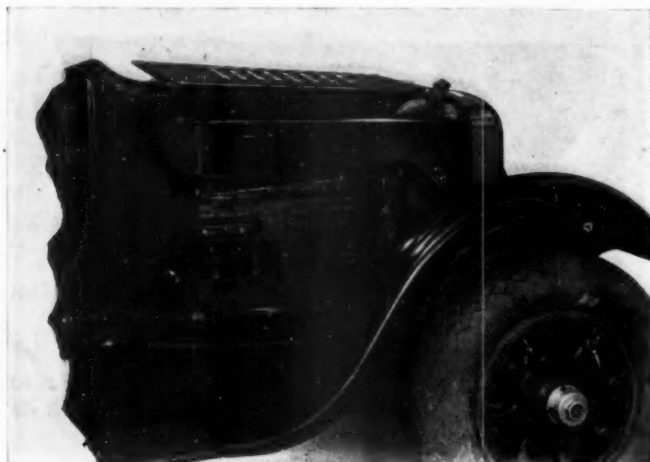
Eveready Prestone Improved

AS a result of recent cooling system research, the National Carbon Company, Inc., New York, has announced a new Eveready Prestone which, it is claimed, will overcome many of the handicaps that operating conditions impose upon anti-freezes in general. The new product is green in color so that it can be readily identified.

The manufacturer claims that less rust will be formed in the cooling system with the new product than with ordinary water, and that a solution which is clear to start with will remain clear in operation, with practically no rust in suspension.

Exhaust Fumes Eliminated in New Heating System

THE Mueller-Evans motor coach heating and ventilating system is distributed by the Electric Service Supplies Company, Philadelphia, Pa. From the outside, the only noticeable part of the system is a shutter on the front of the radiator controlled by a thermostat to regulate the temperature of the air



The Mueller-Evans Heating System Forces Fresh Air Into the Coach Body

coming through the radiator. A duct, sealed around a portion of the fan, takes a portion of the warm air from the top section of the radiator and carries it to a diffuser, located in the dash. The diffuser directs the air stream down to the floor, which is usually the coldest part of the body, with sufficient volume and velocity to heat all parts of the body. A damper control is within easy reach of the driver. The duct has a slip joint to take care of vibration and differences in movement between the radiator and the dash.

The theory of the Mueller-Evans system is to introduce a large volume of fresh warm air into the coach, overcoming a tendency of the exhaust gases to be drawn in through the floor boards or around the doors and windows. It is said that the heater will supply 1,200 cu. ft. of air per hour per passenger. To assure air as clean and fresh as possible, it is drawn in through the top of the radiator, away from street dirt and exhaust fumes.

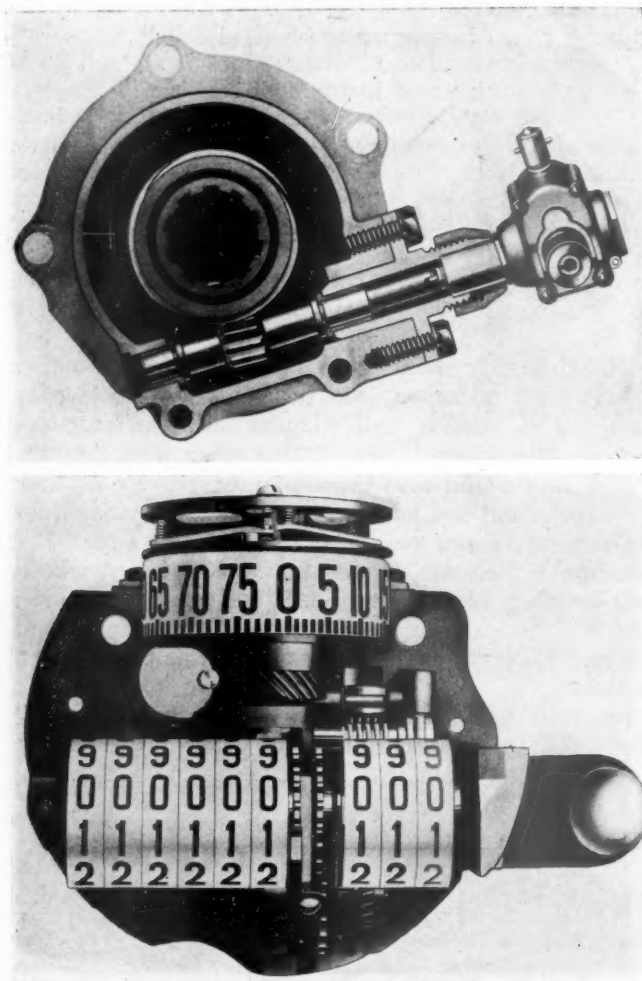
The radiator shutter covers the entire front of the radiator and keeps the cooling water in the temperature

range between 140 and 175 degrees. It is said that the system can be installed on any motor coach in not over six hours, due largely to the fact that no changes or alterations are made in the engine or its accessories.

Stewart-Warner's New Motor Coach Speedometer

THE Stewart-Warner Corporation, Chicago, has developed a heavy duty motor coach speedometer incorporating a larger and heavier adaptor which eliminates bending of the drive shaft at the transmission.

The head or speed element registers up to 1,000,000 miles, and it also has a 100-mile trip odometer which



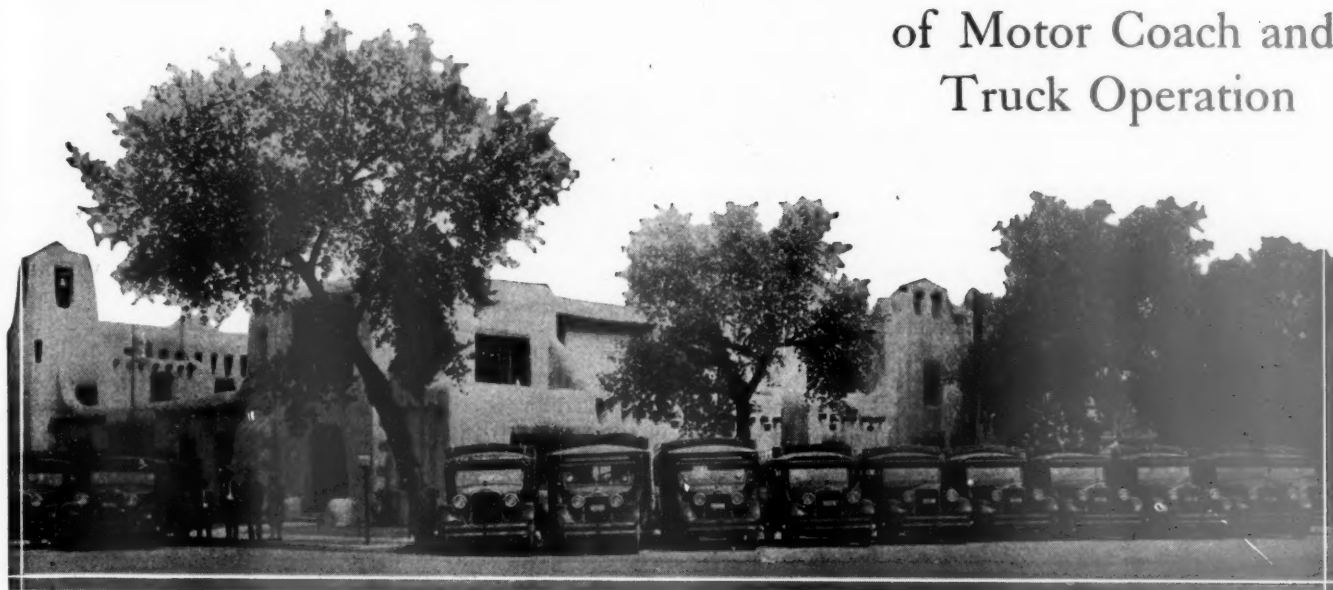
The Upper View Shows the Transmission Drive and the Adaptor. The Lower Shows the Speed Element and the Odometer with the Cover Removed

can be reset at will. The aluminum speed cup is mounted on two sapphires and the magnets are specially constructed for permanency.

The heavy duty transmission drive has a steel sleeve for securely holding the adaptor which provides the necessary reduction to compensate for differences in tire sizes and rear axle ratios. The adaptor is fully equipped with bearings and also has an Alemite fitting so that it can be lubricated along with the other chassis parts at the regular greasing period.

Every-Day Problems

of Motor Coach and
Truck Operation



This Month's New Questions

Question No. 36

Taxation and Regulation

"On the average, what is the amount of taxes and fees paid annually on your motor coaches? Upon what basis are these charges assessed? What are the statutory limitations of motor vehicle dimensions and weights in states where you operate? How generally are these restrictions observed by operators? What proportion of your operating expenses are represented by taxes and fees? What is the trend with respect to motor vehicle taxation and regulation in your territory?"

Question No. 37

Crankcase Oil

"How often do you find it necessary to change the oil in the crankcases of your motor vehicles? Does the age and mechanical condition of the vehicle determine the mileage between drainage, or do you change the oil in every vehicle, after a fixed mileage? Do you reclaim used oil, and what is the cost of the reclaimed oil? Is the record of oil consumption of a vehicle used as a factor in determining whether the engine is in need of overhauling?"

What Is Your Answer?

Replies to Question No. 32

Buying Motor Coach Equipment

"To what extent do you specify the kind of parts, equipment and accessories which are to go into the new motor coaches and trucks which you purchase? In your opinion, is it better to draw up detailed specifications for motor coaches and trucks to be purchased, or to accept the standard products of the manufacturers? Why? What particular items of equipment, apart from those which are standard, do you specify in ordering new coaches and trucks?"

New England's Specifications

In 1929, coach body specifications were drawn by the New England Transportation Co., and these apply now to the body equipment purchased for all our subsidiaries. It is our endeavor, in so far as possible, taking into consideration the requirements of the strictly city operation and the interurban, to furnish a design of equipment which may be more or less standard for our joint interests. Coach body specifications referred to represent a composite type of coach construction. We have been investigating all-metal construction and have acquired some city-type coaches of all-metal construction. While there have been changes from time to time as the art of highway coach construction has progressed, which we have taken advantage of, the coach body specifications adopted in 1929 have served as our guide.

Concerning truck bodies, we have furnished trucks for our various interests with bodies built by several

companies along our line. We did not furnish particular body specification for these, since they were more or less of an experiment, but we watched the construction and made our plans as work progressed. In fact, each order for equipment has involved changes in construction, as we have profited from the experience of our traffic and operating people in the field. Possibly in the near future, with the record of experience of the various subsidiaries before us, we will be in position to compile our initial specifications for truck bodies.

The above, of course, refers to bodies. In so far as the chassis is concerned, we have not attempted to engineer construction, feeling that the automotive engineers designing the equipment for the manufacturers are better qualified in this connection. We do, however, specify headlights, size of wheels, batteries, capacity of gasoline tanks, size and location of bumpers, hub-odometers and brake equipment.

E. S. Montgomery,
Purchasing Department, New York,
New Haven & Hartford.

Manufacturers' Specifications Accepted

As to the kind of parts, we accept the parts supplied by the various coach and truck builders, the majority of them using a very high grade of material and parts, and in almost every case of a nationally known make. As to accessories, we specify certain makes and types, according to our own requirements. In most cases we accept the specification of the manufacturer, with a few exceptions where we include our own specifications pertaining to certain units.

Particular items specified in our specification are items pertaining to brakes, air cleaners, carburetors, electrical systems, gear ratio, tire sizes, shock absorbers and body specifications, to meet our particular operating conditions.

H. P. McDonald,
Superintendent of Automotive Equipment,
Missouri Pacific Transportation Co.

Replies to Question No. 34

Ticket Agencies and Commissions

"To what extent do you use commission ticket agencies for the sale of transportation over your motor coach lines? If your tickets are also sold in railway ticket offices, how does the volume of sales in such offices compare with the volume sold by commission agencies? What characteristics are looked for in a prospective commission agent? What commissions are paid, and what privileges, such as passes, do your agents enjoy? In your territory is the tendency toward more or fewer commission agencies?"

More Tickets Sold at Motor Coach Stations

The West Virginia Transportation Company uses commission ticket agencies only in places where it does not maintain railroad stations located properly for the sale of tickets and the accommodation of motor coach passengers. We have no points at which tickets are sold in both railroad ticket offices and commission offices, so that we have no means of comparing the two methods.

However, in such cases as those in which we maintain our own motor coach company ticket offices, in addition to having tickets on sale in a railroad ticket office, we find that most of our tickets are purchased in the motorcoach office.

In picking a prospective commission agent, we, of course, attempt to pick one who has a place of business in a location convenient to patrons, and, naturally, endeavor to secure ones of honesty and capability whose places of business are clean and maintained at a high standard.

We only pay commissions to agents at points where passengers are actually picked up and discharged, and do not place tickets about indiscriminately in various lunch rooms, drug stores, etc. Of course, we pay standard commissions to connecting lines on interline tickets.

Our commissions are on a five per cent basis and we give no privileges to agents in the way of passes. In our territory there is no tendency toward an increase in commissioned agents.

M. F. Steinberger,
Manager of Highway Transportation,
Baltimore & Ohio.

Tendency Toward Fewer Agencies

Out of 2,152 agencies on Greyhound and Eastern Greyhound Lines, 2,106 are commission agencies. Greyhound tickets are on sale in a number of the offices of the Pennsylvania. Sales in such offices, with the exception of the Broad Street station at Philadelphia, are quite low in comparison with those at the usual type of motor coach station or commission agencies. We attribute this to the fact that the public has not at yet been educated to go to a railroad station for motor coach transportation. The Philadelphia Broad Street station of the Pennsylvania is successful as a motor coach terminal because it is advertised and featured as the main terminal in Philadelphia.

The characteristics looked for in a prospective commission agent are: (a) Location of establishment from the standpoint of pedestrian traffic, (b) convenience from the standpoint of routing coaches through the city (c) availability of parking facilities, and (d) ability and interest of the individual as a ticket agent.

Agents are paid from 5 to 10 per cent commission. The majority receive 10 per cent. Only trip passes, and these usually over one division only, are given commission agents. Passes are issued only on special request and frequent requests are discouraged.

In our territory the tendency is toward fewer commission agencies. It is found that 20 per cent of our agents do more than 80 per cent of our gross business. These are largely company-owned, and the more important commission agents in large cities. The expense of equipping, contacting and maintaining hundreds of small commission agencies is greater, in many instances, than the gross business done by them warrants.

J. B. Walker,
Sales Manager, Greyhound Management Co.

Railway Office Sales Small

The Union Pacific Stages use commission ticket agencies for the sale of transportation in practically all towns where our operation does not demand that we have a payroll representative. About 90 per cent of all our agencies are on a commission basis, the other 10 per cent being at division points or in towns of such size that the transportation sold amounts to more than \$100 a day.

Motor coach tickets are for sale in only a few rail-

way ticket offices, and the sales in these offices are very small. No comparison can be made between rail ticket office sales and commission agency sales, as these rail offices are all in towns where we maintain our own agents.

For a commission agency, we try to find a clean, well located store, as close as possible to the center of town, and having adequate toilet facilities. The agent should be well liked, with a pleasing personality and of sufficient education to read his tariffs and make up the necessary reports.

In most cases, agents are paid a 10 per cent commission, although in certain large agencies the commission is as low as 5 per cent. Passes or reduced rate transportation are not issued to any commission agent.

The tendency at the present time in this territory is toward fewer commission agencies.

Wm. L. McCredie,
General Agent, Union Pacific Stages.

Reducing Number of Commission Agencies

Of our total agencies, approximately 85 per cent are on a commission basis. The volume of our sales in railway ticket offices is very low, compared to the volume sold in commission agencies. We do not use railway ticket offices except between points where we have substitute service, and there are only three or four of these.

Characteristics looked for in prospective commission agents are their financial stability, ability to read tariffs, and their willingness to follow our rules and regulations, as well as the general attitude toward the public. We also have a standard set as to the condition of depots for the comfort and convenience of passengers, which must be adhered to.

We pay a 10 per cent commission, and commission agents are not entitled to free or reduced rate transportation. The tendency in our territory is to reduce the number of commission agents by building our business in the various communities to the point where we can afford to maintain salaried agencies.

H. A. Wooster,
General Traffic Manager, Pacific Greyhound Lines.

Reply to Question No. 35

Reducing Charges for Maintenance

"How does your maintenance cost per mile today compare with that of a year ago? What factors have effected the change, if there has been one? What new maintenance equipment have you installed or what new methods have you devised during the past year which have brought about more efficient and economical maintenance? In your opinion, have maintenance methods in effect throughout the country kept pace with the improvements in equipment? Do you contemplate any changes in your maintenance practices during the next year?"

Maintenance Costs Lower

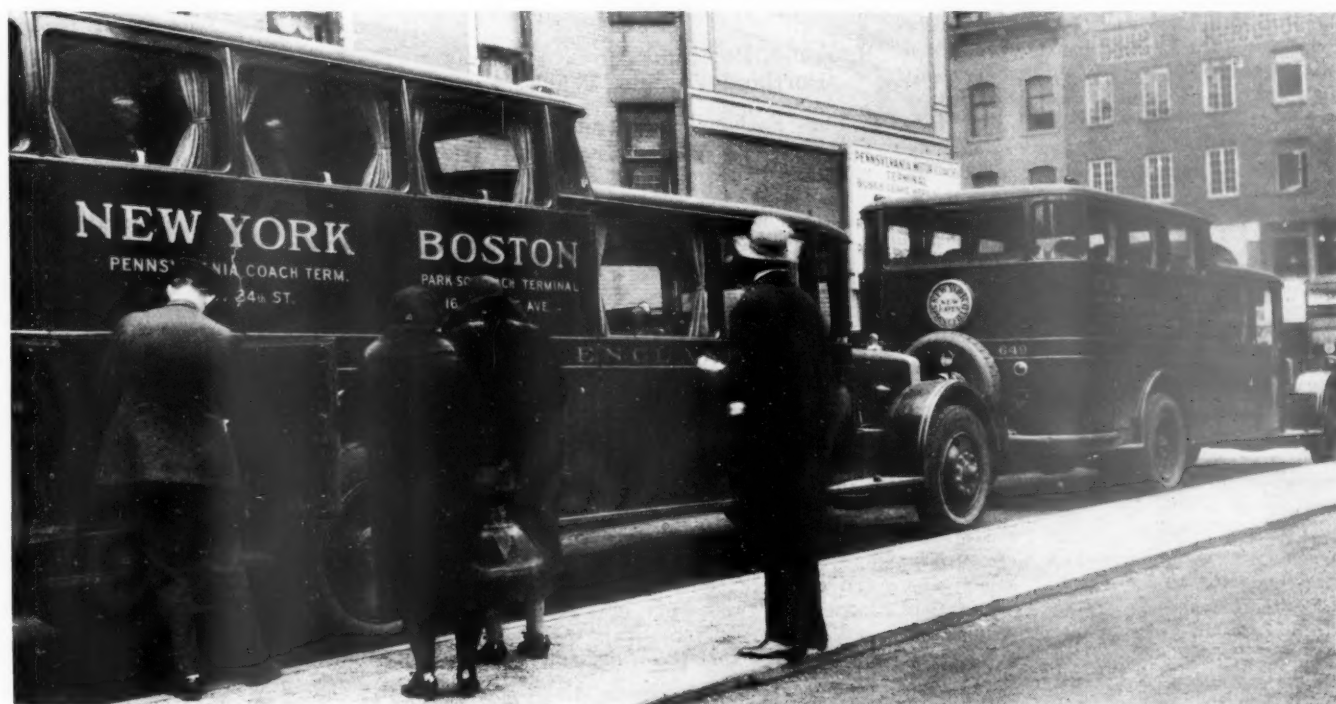
During the past year, this company has experienced a decided drop in maintenance costs due to several factors which might be grouped under the following general headings:

1. Standardization of rolling equipment.
2. Improved general maintenance practices
3. Installation of an efficient salvage and reclamation department.
4. Construction of several standardized garages.
5. Decreasing cost of parts and material through contracts and central purchasing point.
6. Installation of labor saving equipment and devices.

Relative to your question as to whether maintenance practices in general have kept pace with the improvements made by manufacturers, I believe the general consensus is that the majority of the improvements have come through the experience of the various maintenance departments in the different major motor coach companies.

W. A. Duvall,
Manager of Maintenance, Greyhound Management Company.

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Motor NEWS Transport

Delay of Regulation Bill Opposed by N.A.M.B.O.

*Organization holds that I.C.C.
probe should not defer
pending legislation*

The National Association of Motor Bus Operators in a recent circular urged its members to continue their activities on behalf of a suitable bill for the regulation of interstate motor coach lines, suggesting that the present investigation by the Interstate Commerce Commission into rail-highway service should not in any way postpone the enactment of sound regulatory legislation.

"Shortly after the release of the commission's original order announcing the proposed investigation into the coordination of motor transportation rumors were started in different quarters to the effect that the enactment of legislation for the regulation of interstate motor coaches would probably be deferred until after the commission completed its proposed investigation," the circular said.

"While there is considerable likelihood that the commission's investigation will result in a recommendation for legislation which will bring coordinated rail and highway transportation under the control of the commission the connection between the proposed investigation and the pending bill seems to us to be rather far-fetched. The regulation as contemplated under H.R. 10288 and that which might result from the recommendations which the Commission may make as a result of its newly proposed investigation would seem to differ very materially in character. The former, as demonstrated by Congress in its last session, requires the initiation of entirely new legislation while the latter could be taken care of by amendatory legislation.

"In any legislative contacts that our members develop in connection with the pending motor coach bill, where the question of the commission's investigation is raised, it should be pointed out that the matter of regulating interstate motor coaches and trucks was very thoroughly investigated by the commission in 1926, and a recommendation based thereon made to Congress in connection with legislation which had already been introduced and pending before the House Committee. The legislation subsequently passed by the House was based upon this investigation and the present investigation deals with an entirely different question

"As has been stated in previous bul-

Speed Limit for Coaches Is Established in Indiana

The Public Service Commission of Indiana in a new series of rules recently promulgated has prescribed a maximum speed limit of 40 miles an hour for motor coaches operating within that state. Further restrictions stipulate that the speed of motor coaches shall be limited to 20 miles an hour in the closely built up business districts and 30 miles in residential districts.

The rules state that speed in excess of 40 miles an hour "shall be regarded by the Commission as prima facie evidence of a speed greater than is reasonable and proper."

letins, the motor coach bill is now the unfinished business of the Senate and will automatically be the first matter to be considered when the Senate convenes on December 1. As the bus bill stands now it is in very unsatisfactory shape and the only way that it can possibly be cured is for our people and other parties concerned to bring to the attention of the individual Senators sound and reasonable arguments as to why the bill should not be passed in its present form."

Spokane, Portland & Seattle Plans Portland-Yakima, Wash., Line

The Spokane, Portland & Seattle plans to establish a new motor coach route between Portland, Ore., and Yakima, Wash., according to a recent announcement. An application for a certificate over this route is now pending before the public service commission of Washington.

Atlanta Motor Coach Terminal Planned by Greyhound Lines

The Greyhound Lines has applied to the Public Service Commission of Georgia for permission to elect a new motor coach terminal in Atlanta. The new building which is expected to cost approximately \$40,000 will be of steel and concrete construction and is to be located at the corner of Carnegie way and Ellis street. Separate facilities will be provided for white and colored passengers.

Interstate Regulation Again Before Congress

*Parker bill will confront the
Senate when that body con-
venes December 1*

The Parker Bill (H. R. 10,288) providing for the regulation of interstate motor coach lines will again confront the Senate when that body convenes on December 1. This bill which was passed by the House of Representatives on March 24 was, toward the close of the last session, made the unfinished business of the Senate, following the inclusion of several amendments by the Senate committee on interstate commerce and the adoption of others proposed from the floor during debate. The measure was then discussed to some extent in the Senate but too much opposition developed to the bill's present form to bring a vote before adjournment on July 3.

Proponents of the bill as it passed the House have manifested dissatisfaction with some of the Senate amendments. These latter have had the effect of turning both the railroads and large motor coach operators against the measure as it is now framed. R. N. Van Doren, vice-president and general counsel of the Chicago & North Western and chairman of the Law committee of the Motor Transport Division, American Railway Association, voiced the opposition of the railroads in his remarks at the June meeting of the Division at Atlantic City. The National Association of Motor Bus Operators has distributed to its members a circular outlining what that organization regards as objectionable features of the amended bill. A statement accompanying this circular suggests that the arguments on each objectionable provision "should have the desired effect in our efforts to convince Congress of the injustice and unpracticability of the amendments proposed by the Senate committee on interstate commerce and adopted by the Senate". This organization of independents, as reported elsewhere in this News department, does not believe regulation should be delayed pending the Interstate Commerce Commission's rail-highway investigation—it rather hopes that regulatory legislation will be enacted soon but in more suitable form than that contemplated in the pending bill.

In his remarks at the Atlantic City meeting of the Motor Transport Division, Mr. Van Doren outlined the provisions of
(Continued on page 1156)

Equipment Transfer Held Not Subject to N. J. Law

*Court rules Bulk Sales Act
does not require that notice
be given creditors*

The New Jersey Court of Error and Appeals in a recent decision held that the Bulk Sales Act of that State does not require that notice be given creditors when motor coach equipment is to be transferred in a sale. The case, entitled John A. Van Genderen vs. Arrow Bus Lines, Inc., et al, reached the Court of Errors and Appeals on appeal from a decision of the Court of Chancery which had denied a motion to dismiss the complaint on the ground that the statute relied upon had no application to the transaction which was the basis of the bill of complaint.

The opinion of the court, as reported in a recent issue of the United States Daily, follows:

"In June, 1929, the Public Service Co-ordinated Transport purchased from the Arrow Bus Lines, Inc., a fleet of buses which, up to the time of the sale, had been used by the vendor for the transportation of passengers between Paterson and Newark. At the time of the sale Van Genderen, the complainant below and the respondent here, was a creditor of the Arrow Bus Lines, Inc., to an amount approximating \$1,500. The sale was made without any notice having been given to him. Subsequently learning of this transaction between these corporations, Van Genderen filed the present bill, seeking to have the sale set aside as fraudulent and void as against him; or, in the alternative, that the Public Service Coordinated Transport be decreed to pay to him the full amount due and owing to him from the Arrow Bus Lines, Inc.

"He based his right to the relief sought upon the ground that the sale, having been made without notice to him, was in violation of the provisions of the Bulk Sales Act, chapter 208 of the Laws of 1915. The solicitor for the Public Service Coordinated Transport, after service of subpoena upon it, moved to strike out the bill of complaint upon several grounds, the principal one of which was that the statute referred to had no application to the transaction which was the basis of the bill of complaint. Upon hearing, the motion was denied, and thereupon the present appeal was taken.

"In our opinion, the scope given to the Bulk Sales Act by the Court of Chancery was not justified by the language of the statute. The legislative declaration is that 'The sale in bulk of the whole or a large part of the stock or merchandise and fixtures, or merchandise or fixtures, or goods and chattels, otherwise than in the ordinary course of trade, and in the regular and usual prosecution of the seller's business or occupation, shall be void as against the creditors of the seller,' unless notice of the proposed sale be given to them.

"The words, 'otherwise than * * * in

the regular and usual prosecution of the seller's business,' indicate by necessary implication, as it seems to us, that the goods, chattels and merchandise which are the subject matter of the statute are those which the owner sells in parcels in the regular and usual prosecution of his business. In other words, that the class of vendors embraced in the statutory provision are those whose business is the sale of stock or merchandise to intending customers who resort to the place where such stock or merchandise is kept for sale to such persons. The prohibition of the statute, as we see it, is directed solely at the bulk sale of this stock or merchandise by a person carrying on such business, and includes the sale of the fixtures used by such person in the carrying on of that business.

"For the reason indicated, we conclude that the refusal to strike out the bill upon the ground that the Bulk Sales Act had no application was without legal justification. This being so, we find it unnecessary to consider the other grounds upon which the order appealed from is attacked.

"The order under review will be reversed."

Greyhound Interests Acquire Capitol Terminal in New York

The Pennsylvania Greyhound Lines and the Eastern Greyhound Lines have taken over the lease on the Capitol Theater Bus Terminal in New York City, according to a recent announcement.

A new subsidiary to be known as the Capitol Greyhound Bus Terminal will be formed to operate the station. Frank C. Murdock, present manager of the terminal, will be operating vice-president of this subsidiary.

Louisiana Promulgates Railway Rates for Motor Truck Lines

Railroad I.c.l. rates must be applied to shipments over all common carrier highway freight lines operating in Louisiana, according to a recent order issued by the Public Service Commission of that state. The new rates become effective November 15.

Between points west of the Mississippi river and between east bank crossing points on the Mississippi to points west of the river the rates as published in Western Classification No. 61 and supplements are made to apply, subject to exceptions which have been or may be made to prescribe.

Between points in Louisiana east of the Mississippi river the rates published in Southern Classification No. 49 and supplements thereto, subject to changes which may be made by the commission, are made effective.

Additional charges from 25 cents to \$1 per shipment are to be allowed for c.o.d. deliveries, and all operators will be required to post an indemnity bond of \$1,000 insuring all persons against loss.

Greyhound Lines Plan \$1,000,000 Expenditure

*Budget outlay for the next six
months is announced by
President Caesar*

An expenditure of over a million dollars will be made by the Greyhound Lines during the next six months in garage construction, maintenance improvement, and in newspaper, magazine, and radio advertising, according to Orville S. Caesar, president of the company.

"The establishment of company-owned bulk stations on rail sidings has reduced gasoline costs. Maintenance expenses have been cut by closer inspection and the establishment of our own machine shops. Automatic machinery has reduced accounting and clerical expenses. The cumulative savings of these economies have permitted a greater expenditure for sales promotion, new equipment, and expansion," Mr. Caesar said.

"The Greyhound Lines opened a new garage in Albany, N. Y., October 1, and will open new garages in Boston, New York, Pittsburgh, and Kingston, N. Y., by the end of November. Plans have been made for the construction of several other new garages in various cities and actual construction work will start shortly after the first of the year. These garages are equipped with every modern maintenance and servicing device and represent an investment of \$400,000.

"Newspaper advertising has proven very effective in the past in producing quick results and we will continue to place a large volume of business with this medium. We are also placing considerable advertising, both general and institutional, in half a dozen leading national magazines. The institutional type of advertisement has proven especially successful in creating good will for motor coach travel, both for the Greyhound Lines and the motor coach industry as a whole.

"We have placed a moderate amount of radio advertising this fall, results of which have been reflected chiefly in charter business. It is impossible at this early date to determine with any degree of accuracy the complete outcome of this type of advertising, as the broadcasts are still in progress," Mr. Caesar concluded.

Pacific Greyhound Establishes Crockett-Benicia, Cal., Service

Coincident with the recent opening of the new Southern Pacific Martinez-Benicia bridge across Suisun bay on October 15, the Pacific Greyhound Lines began motor coach operation between the towns of Crockett and Benicia, Cal. The new bridge eliminates the train ferry service between Port Costa and Benicia and the new track alignment eliminates Crockett from rail passenger service. The Pacific Greyhound Lines motor coach service crosses the straits by way of Carquinez bridge.

Unprofitable N. J. Routes Abandoned by Railroads

Pennsylvania and Jersey Central allowed to discontinue motor coach lines

Subsidiaries of two railways operating motor coaches in New Jersey were recently granted permission to discontinue services on unprofitable highway routes. These companies were the Pennsylvania General Transit Company, highway subsidiary of the Pennsylvania, and the Jersey Central Transportation Company, highway subsidiary of the Central of New Jersey.

The Pennsylvania General Transit Company was granted permission to discontinue motor coach service on its Trenton-Seaside Park route between the Trenton terminal of the P.R.R., and the junction of Trenton road with Lakehurst road in Browns Mills, N. J. A statement of the total revenue derived from the operation of this route between April 27 and September 8, was filed with the Board of Public Utility Commissioners in connection with the application to discontinue. These figures showed a loss on the operation of \$3,346.65 during the four months period. The Pennsylvania proposes to maintain service over the remainder of this Trenton-Seaside Park route in conjunction with its Philadelphia-Browns Mills-Seaside Park line.

The application of the Jersey Central Transportation Company sought permission to discontinue the operation of two motor coaches on its Lakewood-Lakehurst-Toms River route, a certificate for which operation had been granted on January 20. "Testimony of the petitioner," the board states, "shows that the traffic anticipated at the time of application for approval of consents for operation on the route has not materialized and the number of passengers using motor coaches does not provide sufficient revenue for the maintenance of service." A statement of operating revenues and expenses, from January to June, inclusive, showed that the total operating revenue was \$461.39, and operating expenses were \$2,877.05, thus leaving an operating deficit of \$2,415.66. A similar statement for the month of July shows a net operating deficit of \$293.59 and for August a loss of \$528.89.

Final Steps in Consolidation of Pacific Greyhound Lines

Final steps to consolidate all operating rights of the Pacific Greyhound Lines in California was taken recently when the motor coach company filed an application with the California State Railroad Commission requesting authorization for the complete consolidation of certificates and rights held by motor coach lines which are now a part of the Pacific Greyhound Lines system.

According to Earl A. Bagby, vice-president and general counsel of Pacific

Greyhound Lines, granting of the application will complete the work of consolidating various leading motor coach lines into a unified system throughout the State of California.

The work of consolidating these operating rights and certificates has been going on for the past year and this is the final step to make uniform all express, baggage and passenger tariffs on all routes of the Pacific Greyhound Lines in California.

Increased Rates in Minnesota for La Crosse & Southeastern

The La Crosse & Southeastern Transportation Company, highway subsidiary of the La Crosse & Southeastern, has been authorized by the Minnesota Railroad and Warehouse Commission to increase its rates for the transportation of passengers in motor coaches. The revenue of the company during the first seven months of 1930 was found to equal about 15.9 cents a coach mile, whereas the operating expenses average 17.3 cents per coach mile for the 114,516 miles operated.

A. E. R. A. Golden Anniversary Convention Sept. 26-Oct. 2, 1931

The Fiftieth or Golden Anniversary Convention of the American Electric Railway Association will be held in the new auditorium and convention hall at Atlantic City, N. J., September 26 to October 2, 1931. In connection with this convention, the operating and manufacturer members of the association will stage the usual exhibit of equipment and appliances of interest to the delegates. This exhibit usually includes a large number of motor coaches and other automotive equipment and devices.

M. P. and T. & P. Extend Freight Trucking Operations in Texas

The Railroad Commission of Texas has recently approved applications which permit the Missouri Pacific and the Texas & Pacific to extend their motor truck operations within that State.

The Missouri Pacific Transportation Company, which for several months has been operating a pick-up and delivery service along its lower Rio Grande Valley and Gulf Coast divisions, has now extended this service to other subsidiaries including the Atchison & Gulf, the Asphalt Belt, the Beaumont, Sour Lake & Western, the Houston & Brazos Valley, the International-Great Northern, the Orange & Northwestern, the San Antonio Southern, the San Antonio, Uvalde & Gulf and the Sugarland.

Certificates granted to the Texas & Pacific permit it to extend its rail-highway service to the Abilene & Southern, the Cisco & Northeastern, the Denison & Pacific Suburban, the Texas-New Mexico, the Texas Short Line and the Mineral Wells & Northwestern.

Automotive Chamber To Participate in Hearings

Attitude toward rail-highway probe is announced in recent statement

The National Automobile Chamber of Commerce plans to participate in the hearings in connection with the Interstate Commerce Commission's investigation into the highway service of railroads. These hearings, as announced in the *Motor Transport Section* of October 25, page 910, opened November 17 at St. Louis and will be held at various points throughout the country with a final session scheduled at Washington, D. C., on March 4.

The decision of the Automobile Chamber of Commerce to participate was announced in a statement made public on November 6, which said that the Chamber would be represented at the opening hearing in St. Louis and at the second hearing in Kansas City, by Edward F. Loomis, secretary of the Motor Truck Committee, and at succeeding hearings by Mr. Loomis and Richard S. Armstrong of the Motor Vehicle Conference Committee. Other persons identified with the Chamber are also expected to participate.

"The railroads under the jurisdiction of the commission have been required to present all the facts they can obtain and the efforts of the chamber will be concentrated on bringing into the proceedings truck and bus operators, shippers and other interested parties, not subject to the commission's order," the statement said.

I.C.C. Denies P.R.R. Petition for Probe of B. & O. Transfer

The Interstate Commerce Commission has denied the petition of the Pennsylvania which sought to have that regulatory body inquire into the train-connection motor coach services operated by the Baltimore & Ohio at New York City and Newark N. J.

The B. & O. on October 21 filed a tariff to cover this service, as announced in the *Railway Age* of October 25, page 869. This tariff was filed at the request of the Commission and under a Sixth section application the commission allowed it to become effective on three days' notice.

Pickwick Inaugurates Charter and Special Party Services

The Pickwick Company, according to a recent announcement, has organized a new department to conduct charter and special party motor coach service. This new service, it was stated, was established in response to a growing demand for motor coaches on charter trips, a number of such trips have already been booked for November and December.

Fruits and Vegetables Hauled by Motor Truck

*Bureau of Railway Economics
bulletin compares highway
and rail movements*

The extent to which motor trucks are used to handle fresh fruits and vegetables into various terminals is revealed in statistics prepared by the United States Department of Agriculture, Bureau of Agricultural Economics and reproduced in Bulletin No. 39, (Unloads of fresh fruits and vegetables at sixty-six important consuming markets in the United States Calendar year 1929) issued by the Bureau of Railway Economics.

The Bureau points out that truck unloads were reported for only sixteen of the 66 markets and for four of the markets, namely Philadelphia, Baltimore, Kansas City and San Francisco, the unloads were very incomplete. The figures are expressed in terms of equivalent rail carloads. The market receiving the greatest quantity of fresh fruits and vegetables by truck was Los Angeles. Truck unloads at that point aggregated 21,405 equivalent rail carloads as compared with 17,044 cars that entered the market by rail. Rail unloads exceeded truck unloads at Los Angeles for only five of 18 commodities. The relationship of rail and truck unloads to total unloads for the 18 commodities combined, at Los Angeles, was 44.3 per cent and 55.7 per cent respectively. At Salt Lake City, 50.1 per cent of the total was truck unloads and 49.9 per cent rail unloads. At Newark, N. J., the percentage of truck unloads to total unloads was 29.8 per cent; at Denver, 21.4 per cent; at Portland, Oregon, 12.1 per cent; at Cincinnati, 10 per cent; at Boston, 9 per cent; at New York and Chicago, 6 per cent; while for the remaining cities the ratio of truck to total unloads was one per cent or less.

Monon Permitted To Replace Indiana Trains With Coaches

The Monon Transportation Company, highway subsidiary of the Chicago, Indianapolis & Louisville, has been authorized to install motor coach service in substitution for trains now operated by the parent railroad over two Indiana routes. The routes involved are between Lafayette and Monon and between Monon and Medaryville. The change will become effective December 1, and the order stipulates that if motor coach service be discontinued for any emergency, the Monon must provide rail transportation between the towns affected.

Northwest Freight Transport Files First Oregon Tariffs

Tariffs covering the transportation of freight in co-ordinated rail-highway service have been filed with the Oregon Public Service Commission by the Northwest

Freight Transport Company, highway subsidiary of the Spokane, Portland & Seattle. This subsidiary, as announced in the *Railway Age* of August 25, page 869, was formed recently in order to provide store-door freight service along lines of the parent railroad.

The plan contemplates a co-ordinated service to be carried out under contract with transfer concerns in each city and with the intercity transportation to be handled by rail under rates comparable to those now in effect on trucking lines.

The tariffs filed with the Oregon commission cover service between Portland and Salem, Albany, Corvallis and Eugene.

Highway Service for Winter on Central of Georgia Route

The Central of Georgia, through its highway subsidiary, the Central of Georgia Motor Transport Company, has replaced steam train service with motor coaches on its line between Savannah and Tybee, Ga. This motor coach operation will continue until the summer season when it is planned to resume the operation of passenger trains. The highway vehicles operate on approximately the same schedule as did the trains with three round trips daily and one on Sunday over the route.

In connection with this substitution the regular freight service between Savannah and Tybee will be continued, but freight will be transported by truck when the volume is insufficient to warrant the operation of trains.

Highway Lines of the Railways Compete Successfully in Texas

The growing competition from railroads operating motor coach and truck lines in Texas has been assigned as an important reason for the forfeiture of a number of permits held by independents, operating highway freight and passenger service in that State. The Railroad Commission has recently cancelled 400 permits, the action in most cases being based upon the failure of operating companies to pay State taxes which were due on September 15.

In some cases, it was stated, the companies failed to keep up the insurance of passengers as required by law, while unprofitable business, resulting from the competition of railway operators, was given by others as the reason for allowing their permits to be forfeited.

Improvements on 9,349 Miles of Highway in Current Year

Improvements on 9,349 miles of Federal-aid highways were completed this year in the 48 states and Hawaii, according to statistics recently published by the Bureau of Public Roads, U. S. Department of Agriculture. Toward the close of the year improvements were in progress on 9,915 miles, while an additional 3,469 miles were approved for construction.

Illinois Law Limiting Vehicle Loads Upheld *Court finds weight restriction to be proper exercise of police power*

The Illinois Supreme Court in a recent decision upheld the constitutionality of that section of the Illinois Motor Vehicle Act of 1919 which restricts to 16,000 pounds the weight through any axle of any highway vehicle operating on the public highways of that state. The opinion, handed down in the case entitled "The People of the State of Illinois v. W. Linde," was prepared by Commissioner Edmunds and adopted as the opinion of the court.

The portion of the Motor Vehicle Act which was challenged in the case is Section 3 of chapter 95-2 of the Revised Statutes of Illinois. It reads in part as follows:

(1) The maximum gross weight to be permitted on the road surface through any axle of any vehicle shall not exceed 16,000 pounds, nor shall it exceed 800 pounds per inch of width of tire upon any one wheel; provided, further, that the gross weight, including the weight of the vehicle and maximum load of any self-propelled four-wheel vehicle shall not exceed 24,000 pounds. The gross weight, including the weight of the vehicle and the maximum load, of any self-propelled six or more wheel vehicle, shall not exceed 40,000 pounds, nor shall any two axles lie in the same vertical plane, nor shall the axle spacing be less than 40 inches from center to center; provided, that the axle arrangement shall be such that the proportion of the gross load carried on any axle shall remain constant; and the gross weight, including the weight of the vehicle and maximum load of any trailer or semi-trailer vehicle pulled or towed by a motor vehicle shall not exceed 32,000 pounds.

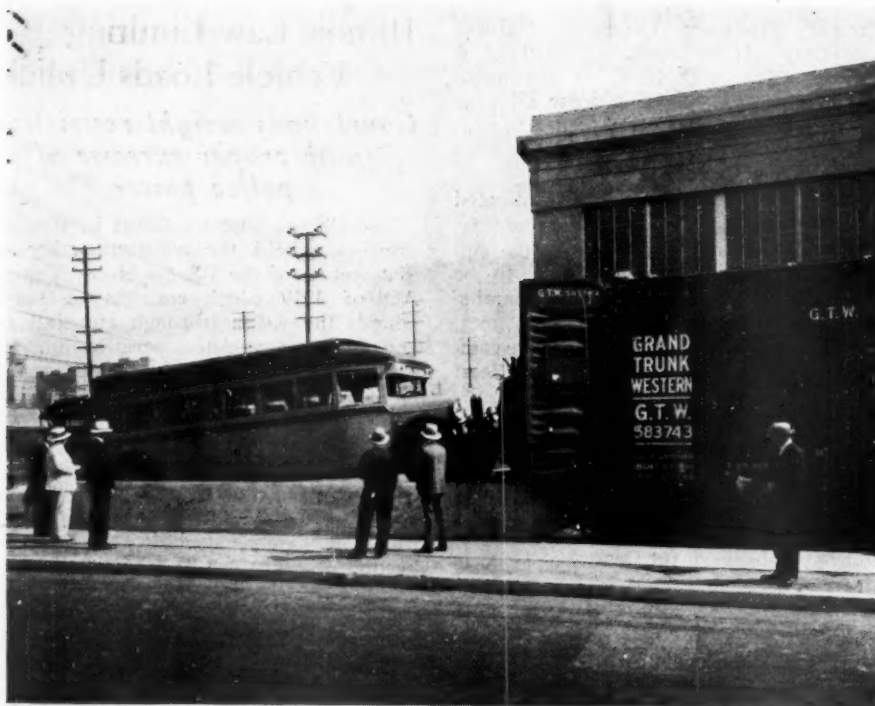
(2) Weight limits 50 per cent above those provided for herein may be permitted by ordinance in cities having a population of more than 20,000, but such increase shall not apply to vehicles when outside the limits of such a city, nor shall the gross weight of any vehicle operating over any street or highway of this State exceed 40,000 pounds.

Excerpts from the decision, as reported in a recent issue of the United States Daily, follow:

"Plaintiff in error, W. Linde, was tried before a justice of the peace for violation of section 3 of the Motor Vehicle Act of 1919 as amended and was found guilty and fined. He appealed to the Circuit Court of DuPage County, where he waived a jury. There was a trial by the court, resulting in a finding of guilty and the imposition of a fine. The case is here on writ of error, plaintiff in error contending that section 3 is in conflict with the Fifth and Fourth Amendments of the Constitution of the United States and with sections 2 and 14 of article 2 of the Constitution of Illinois.

"At the time of his arrest plaintiff in error was driving a truck towing a trailer upon Route 5, one of the improved highways of the State of Illinois. Upon the trailer was a steam shovel or crane. The weight on the front axle of the trailer was 28,000 pounds * * *

"Although the police power has constitutional limits and any measure enacted or adopted in its exercise must, to be sustained, bear some reasonable relation to the purposes for which the power may be exercised, and although the legislature may not, under the guise of protecting the public interests, arbitrarily interfere



One of the Yellow Coaches Recently Purchased by the Pacific Greyhound Lines Being Loaded at Pontiac, Mich., for Shipment to Los Angeles, Cal.

with private rights, the authority of the States to enact such laws as they deem reasonably necessary to promote the public health, morals, safety and general welfare comprehends a wide range of judgment and discretion in determining the matters which are of sufficiently general importance to be subjected to State regulation and administration ***

"It is the proper function of the legislative department of government in the exercise of the police power to consider the problems and risks that arise from the use of new inventions and endeavor to adjust private rights and harmonize conflicting interests by comprehensive statutes for the public welfare ***

"Under its police power the General Assembly has the same authority to pass an act for the general protection of the property of the public as to pass an act for the general protection of the property of an individual. As to the public streets the right to use them for purposes of travel is not an absolute and unqualified one. It may be limited and controlled by the State in the exercise of the police power whenever necessary to provide for and promote the safety, peace, morals, health and general welfare of the people, and is subject to such reasonable and impartial regulations adopted pursuant to this power as are calculated to secure to the general public the largest practical benefit from use of such highways and to provide for the safety of the public while using them ***

"This court will take judicial notice that the use of the public roads and bridges by vehicles of excessive weight is calculated to result not only in injury to public property, but also in danger to all who travel such thoroughfares ***

"We may not assume that weights less than those proscribed by section 3 are of

the class bringing the danger which it is sought to avoid or that weights in excess of those prescribed do not bring such danger. There is nothing in this record or of which we may take judicial notice to indicate that the proscriptions of this provision are not properly related to the purpose thus sought. The section is, therefore, valid ***

"So far as the contention of discrimination is concerned, it is sufficient to say that the legislature may exercise the

No Action by N.A.M.B.O. on Rail-Highway Inquiry

The National Association of Motor Bus Operators has up to the present time taken no official action on the investigation of the Interstate Commerce Commission into the rail-highway operations of common carriers subject to the Transportation Act. This attitude was revealed in a recent circular to members which stated that "the matter of appearing at the hearings and offering testimony will most likely be left to the discretion of the individual motor coach companies.

"Inasmuch as the hearings are apparently designed to bring out the extent to which rail carriers are engaged in the operation of motor vehicles as a part of their transportation service," this statement continued, "it is not likely that the Association will be officially represented at any of the hearings by witnesses from member companies."

power of classification, and some latitude must be allowed to the legislative judgment in selecting the basis of classification. That power must be exercised in a manner palpably arbitrary to authorize a judicial review of it, and it cannot be disturbed by the courts unless they can clearly see that there is no fair reason for the law that would not require with equal force its extension to others whom it leaves untouched ***

"It is incumbent upon the one invoking the protection of the Fourteenth Amendment to show with convincing clarity that the law of the State created the discrimination of which he complains. This statute, which makes the weight of the load the determining factor and which applies to those who propose to transport over the public highways loads over a certain weight, rests upon an actual, substantial difference between that class of individuals and others, and it involves no such arbitrary or unreasonable discrimination as to justify this court in declaring it unconstitutional.

"The judgment of the circuit court is affirmed."

Interstate Regulation Again Before Congress

(Continued from page 1152)

motor coach regulation for which railways had fought. These provisions he said were practically eliminated from the existing bill which he said would bring competition with a vengeance since it "forces the railroads to go out and run an independent line and chase the other fellow off the highway if they can, compete with him until they ruin him, but they cannot buy his motor coaches." These remarks of Mr. Van Doren were reported at length in the *Motor Transport Section* of July 26, page 185. At the Chicago meeting of the Division, held November 11-13, its Law committee again voiced opposition to that section of the amended bill which makes it illegal for a railway in the future to acquire an interest in a motor coach line, suggesting that it would be better to have the bill voted down than to have it passed in its present form.

The circular distributed by the National Association of Motor Bus Operators lists six features of the amended bill to which this organization is opposed. The first is the Bratten amendment to section 2 stipulating hours of service of employees and requiring coaches carrying more than 20 persons to have two operators on duty.

The second objection is to the present form of that section relating to the issuance of certificates. In connection with this section the circular says that the present wording "is objectionable in that it directs the commission to give consideration to the issuance of another certificate if the only service over a particular route is carried on by a company in which a railroad is interested but contains no such direction to that body in a converse

case. Manifestly, if this language were retained in the bill, the implication would be created that the congressional intent is for more favorable consideration to be given to applications of independently owned and operated motor carriers than to applications of motor carriers in which a railroad is interested."

The next feature opposed by the N. A. M. B. O. is that, emphasized by Mr. Van Doren, which makes the acquisition of a motor coach line by a railroad illegal. Of this provision the statement says "The public is interested in transportation and not in ownership. There should be no inflexible rule of law keeping the railroads out of the motor coach business."

Other objectionable features discussed in the circular were the provision regarding security for the protection of the public, that requiring that a record be kept of the names of all passengers and that which excludes any evidence of good will, earning power or the value of operating certificates from proceedings to determine the reasonableness of rates.

Correction

In the article entitled "Report on Motor Coach Operating Costs," which appeared in the Motor Transport Section of October 25, page 901, the following sentence appeared: "The last table gives the revenue and expense costs on a per coach mile basis, and shows the total operating expense of a 20-passenger coach to be \$0.238 per mile, or \$0.0119 per passenger-mile, and of a 30-passenger coach to be \$0.275 per mile, or \$0.0092 per passenger-mile." This is incorrect, since the term "passenger-mile" was incorrectly used in place of the term "seat-mile." The sentence should have read: "The last table gives the revenue and expense costs on a per coach mile basis, and shows the total operating expense of a 20-passenger coach to be \$0.238 per mile, of \$0.0119 per seat-mile, and of a 30-passenger coach to be \$0.275 per mile, or \$0.0092 per seat-mile."

Orders for Equipment

THE HUNTINGTON & BROAD TOP TRANSIT COMPANY, highway subsidiary of the Huntington & Broad Top Mountain, has accepted delivery of one a. c. f. 21-passenger motor coach.

Among the Manufacturers

M. L. Kerr, chief engineer of the Brockway Motor Truck Corporation, has been given jurisdiction over the combined engineering departments of the Brockway and Indiana divisions of that company, with headquarters at Cortland, N. Y. These departments were recently concentrated in order to centralize engineering work in the company's general offices at Cortland. Mr.

Six Months Gas Taxes

Amounted to \$230,982,099

Revenues totaling \$230,982,099 were collected by the 48 states and the District of Columbia from taxes on gasoline during the first six months of 1930, according to reports compiled by the Bureau of Public Roads, U. S. Department of Agriculture. These gasoline taxes ranged from two cents to six cents per gallon, the average being 3.39 cents or 0.17 cents more than the average of 3.22 cents during 1929.

After deducting collection costs of \$995,719 from the tax receipts for the first six months of 1930, the States distributed the remainder as follows: \$157,390,770 for construction and maintenance of State roads and \$44,894,169 for construction and maintenance of county roads; \$14,868,154 to apply on State and county road bonds; and \$12,833,287 for miscellaneous purposes, such as town and city streets, public schools, seawall protection of roads, inland waterways under State departments of commerce and navigation, and oyster conservation.

Kerr entered the automotive field in 1908, as draftsman for the Mercedes Motor Car Company. Subsequently he was connected with the Westinghouse Electric Company and the Falls Machine Company, and in 1913 he became associated with the Dart Motor Car Company of Waterloo, Iowa, as chief engineer. In 1916, he accepted a similar position with the Indiana Truck

Corporation at Marion, Ind., which position he held until the consolidation of the Brockway and Indiana companies. Stephen G. Thompson has resigned as sales promotion manager of the Brockway Motor Truck Corporation at Cortland, N. Y., and Gerald D. Shira will undertake his duties and serve as advertising manager. William T. DeLozier, manager of the Pittsburgh, Indianapolis and Cleveland branches of the Indiana division, with headquarters at Cleveland, Ohio, has been transferred to a similar position at the Rochester, N. Y., branch and Robert J. Purcell has been appointed manager of the Syracuse branch.

The Hercules Motors Corporation, Canton, Ohio, has announced the appointment of Hedge & Mattheis Co., Boston, Mass., and Cyril J. Burke, Detroit, Mich., as new distributors for Hercules engines, power units and spare parts.

The Chicago branch of the Brockway and Indiana divisions of the Brockway Motor Truck Corporation is now located in new headquarters at 3913 South Michigan boulevard, Chicago. The company occupies the entire ground floor, which covers some 32,000 sq. ft. of floor space.

Elmer J. Lang, president and general manager of the Lang Body Company, has been appointed district sales manager of the Ohio territory of the American Car and Foundry Motors Company, with headquarters at Cleveland, Ohio. He was born in Cleveland and commenced his business career in 1905. From then until 1915 he was sales manager of the Rauch and Lang Carriage Company, Cleveland. From 1915 to 1917 he was territorial sales manager



A Boston-Manchester, N. H., Motor Coach of the B. & M. at Lowell, Mass., Station

of the Baker R. & L. Company, and in the latter year organized the Lang Body Company. He has held the position of president and general manager of this company from 1917 until his recent appointment.

B. C. Palmer, special sales engineer for the **Ohmer Fare Register Company**, assumed complete charge of the Chicago branch of that company on October 1. In addition to supervising the business offices there and continuing in the capacity of general sales manager for the company's taximeters, cash registers and recording devices, Mr. Palmer will direct Ohmer activities over a large surrounding territory in eight States. He has been connected with the taxicab industry since 1913, when he entered the employ of the American Taximeter Company, remaining with that company until it was sold to the Ohmer interests in 1924. Early in 1925 he became connected with the Yellow Taxi Company for two years, at the end of which time he joined the Ohmer Fare Register Company as special sales engineer in their eastern territory.

A. H. D. Altree, vice-president of the **American Bosch Magneto Corporation**, will retire from active business, effective December 31. Mr. Altree entered the automotive field as secretary of the Daimler Motor Syndicate, Ltd., in London, England, and in 1896, when the Daimler Motor Company, Ltd., was formed, he became general manager. Some years later, he was appointed manager of the first electrical carriage company in London. Mr. Altree joined the magneto industry as manager for Frederick R. Simms, then holding the Robert Bosch Magneto sales agency in London. In 1909, Mr. Altree left Frederick R. Simms and joined Robert Bosch, first undertaking a journey around the world to ascertain the possibilities and requirements of magnetos in all commercial countries. Returning, he was then appointed as manager of the Chicago branch of the former Bosch Magneto Company of New York and later he was transferred to the New York headquarters as vice-president.

Ralph W. Kimberley has been appointed factory sales representative of the **Russell Manufacturing Company** in Buffalo, N. Y., and vicinity; **Hilmar A. Saetre** has been appointed to represent the same company at Boise, Idaho, and **A. J. Dumeer** has been transferred from the New London, Conn., territory to the Fall River Mass., district. **Edward LeJambe** has been appointed junior salesman in the Toronto, Ont., district and **Henry A. Myers** has been appointed to a similar position at Hamilton, Ont. **George E. Simmons** has been appointed salesman in the Utica, N. Y. district, while **Oscar H. Counts**, formerly with the Monongahela West Penn Public Service Company, has joined the sales force of the Marietta, Ohio, district.

Myron E. Benn, now assistant to the

general service manager of the **Russell Manufacturing Company** at Middletown, Conn., has been appointed service manager at Atlanta, Ga. Mr. Benn was educated at Purdue University, and in 1922 he entered the service department of the Russell Company in its Chicago office. Three years later he was appointed assistant manager of the Chicago division and then was transferred to a similar position on the Detroit division. During the last two years he has served as assistant to the general service manager at the factory at Middletown, the position he held until his recent appointment.

Motor Transport Officers

J. W. Shortridge, special traffic representative of the Pickwick Company, Los Angeles, Cal., has been appointed manager of that company's newly-organized charter coach service department. He entered the motor transport field about 15 years ago as an independent operator, organizing the Los Angeles Sightseeing Company. In 1925 he sold out the business to the Pickwick Company and entered their service. Since that time Mr. Shortridge has been engaged in traffic promotion work for the Pickwick Company.

Carl J. Sundberg, formerly district passenger agent of the Southern Pacific, and more recently connected with the Matson Navigation Company, has been appointed assistant general traffic manager of the Pacific Greyhound Lines,



Carl J. Sundberg

Inc., Union Auto Transportation Company, Pacific Greyhound Lines of Texas, Inc., and the California Parlor Car Tours Company, with headquarters at Los Angeles, Cal. He will have jurisdiction over the territory from El Paso, Tex., to and include Fresno, Cal.

T. Finkbohner has been appointed superintendent of transportation of the Pacific Greyhound Lines, Inc., Union Auto Transportation Company, Pacific Greyhound Lines of Texas, Inc., and the California Parlor Car Tours Company, with headquarters at San Francisco,

Cal. All matters pertaining to schedules will be handled by Mr. Finkbohner direct with superintendents of operation or other officials. He will also act in similar capacity for interstate schedules through Oregon for the Pacific Greyhound Lines, Inc., and the Oregon Stages division.

William R. Quattrocchi has been appointed assistant sales and advertising manager of the Greyhound Management Company, with headquarters at Cleveland, Ohio. Mr. Quattrocchi will spend the greater part of his time in the field, working with supervisors and agents both on the Greyhound Lines and principal connecting lines and will make



William R. Quattrocchi

complete sales surveys of the various Greyhound territories. Previously he had served, from 1924 to 1926, as assistant sales manager of the Alemite Company, later serving as branch manager of the Celotex Company and as president and general manager of the Marb-L-Cote Company, where he acquired valuable experience in sales promotion work.

Obituary

Emile Coupard, divisional manager for the White Company in Cuba, West Indies and Mexico, died on October 28 at San Juan, Porto Rico, following an operation. Mr. Coupard had been connected with the White Company for the past 10 years.

Trade Publication

RECOMMENDED PRACTICE IN MOTOR COACH LIGHTING.—Bulletin E-109 issued by the Illuminating Engineering Bureau, Westinghouse Lamp Co., 150 Broadway, New York, contains information on the sizes of incandescent lamps to use in the various lighting positions, the relative efficiency of representative types of lighting fixtures, the effect of interior finish upon lighting efficiency, how to focus headlights, the proper construction of illuminated signs, how to select the proper battery and generator to carry a given lighting load, and other related data.